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, The Economy

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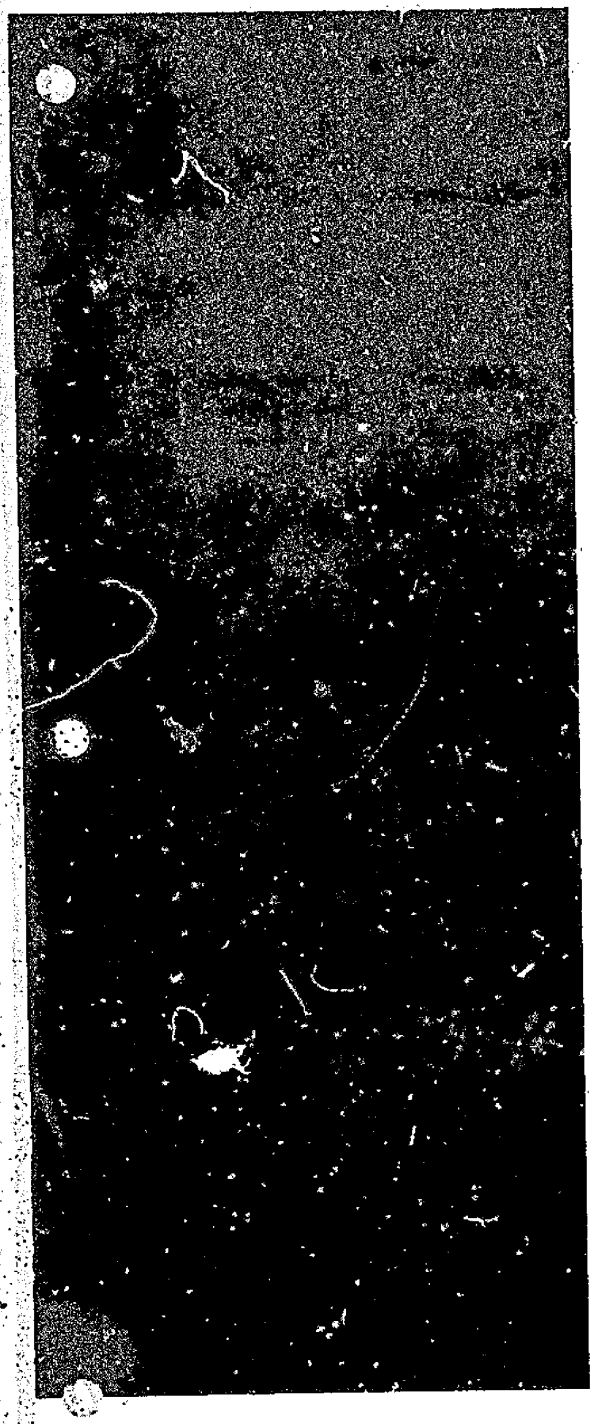

Thailand

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This chapter supersedes the economic coverage in the General Survey dated March 1970.

FIGURES

The Economy

A. Economic appraisal (C)

Thailand is one of the few less developed countries to have sustained a rapid rate of economic growth during the past decade. Economic growth for the 1962-72 period as a whole averaged 7.6% annually, although some slowdown occurred in the last few years, with annual growth rates of 6.6%, 6.4%, and 3.9%, during 1970-72. As population grew about 3% annually, real gross domestic product (GDP) per capita for the period increased an average of about 4.5% annually, a very respectable performance among low-income countries.

A remarkable feature of Thailand's growth is that it has been accomplished while the economy is still largely agricultural. Agriculture employs about 75% of the labor force; together with processing and commercial activities related to farming and forestry, it also accounts for more than two-fifths of GDP. Although the importance of farming in national output is gradually declining, Thailand's achievement of an average annual rate of growth of about 5% in agricultural output during 1962-72 is matched by few countries in Southeast Asia. This growth was sufficient to provide for an increasing consumption of food by Thailand's rapidly growing population and surpluses for export.

Rice continues to dominate the agricultural sector, having averaged nearly three-fifths the annual net value of all crops produced from 1966-70 and 22% of annual exports during 1967-72. The average output of paddy during 1967-72 was 23% above that of the preceding 5 years. In contrast to the long-term historical trend in Thailand, where increases in output depended entirely on an expansion of the cultivated area, increases over the last decade have resulted as much from higher yields—primarily because of improved water control—as from expanded cultivation.

Within the agricultural sector, there has been a movement toward a more diversified range of products as well as higher levels of production. In 1971 corn replaced rubber as the second most important agricultural commodity after rice in both production and export value. Due to inefficient processing techniques and a long-term decline in world prices, rubber exports in 1972 earned 34% less than in 1960, even though the volume exported increased 91%. Besides corn, other crops that have increased in importance include kenaf, cassava (tapioca), mung beans, sorghum, tobacco, and sugar. Although insignificant a decade ago, these crops now account for about 20% of total exports. Thailand is one of the few less developed countries to have achieved some measure of success in diversifying its agricultural exports.

Thailand's agricultural progress is the more remarkable because the country is not well endowed with natural resources. Land is relatively abundant, but an irregular water supply and, in some areas, infertile soil make farming difficult. Considerable effort has been made to develop the nation's irrigation system, but most arable land still lacks water control, and crop production in many areas is entirely dependent on weather conditions. Forests provide teak, yang, and other wood useful in construction, as well as bamboo, which is used extensively throughout the country for a variety of purposes. However, the logging industry has been poorly managed, and much of the readily accessible stock is depleted. Forestry's contribution to GDP fell from 2.5% in 1967 to 2.1% in 1972.

Tin and fluorite are the only minerals produced in Thailand in quantities of international significance. Tin is the country's fourth-largest export (1971), and Thailand ranks third as a world producer. Lignite is the only fuel available in significant quantity. Tenneco and Union, two of several companies exploring for petroleum in the Gulf of Thailand, reportedly found traces of oil in 1972, but no commercially exploitable field has been confirmed.

Despite the limited resource base, a solid start has been made toward modernization outside of farming. Steadily claiming a larger share of national output, the nonagricultural sectors of the Thai economy grew during the period 1962-72 at an average annual rate of 9.7%. Together, these sectors increased their share of GDP from 63% in 1962 to 71% in 1972 (Figure 1).

FIGURE 1. Sectoral origins of gross domestic product (U/OU)
(Value in millions of U.S. dollars; 1962 prices)

	1962		1972	
	Value	Percentage	Value	Percentage
Agriculture	1,138.9	37.1	1,884.1	29.4
Wholesale and retail trade	476.0	15.5	1,076.9	16.8
Manufacturing	432.7	14.1	1,174.0	18.3
Services	295.2	9.6	663.0	10.3
Transportation and communications	222.6	7.3	418.3	6.5
Construction	157.2	5.1	309.6	4.8
Public administration and defense	137.0	4.5	273.6	4.3
Banking, insurance, and real estate	71.1	2.3	277.4	4.3
Ownership of dwellings	81.7	2.7	120.2	1.9
Mining and quarrying	36.5	1.2	88.9	1.4
Electricity and water supply	18.3	0.6	129.3	2.0
Total	3,067.2	100.0	6,415.3	100.0

Among the most rapidly growing sectors are electric power, banking and insurance, and manufacturing, all of which have gro- n at average annual rates above 10% since 1962. The output of electricity and the expansion of the processed water supply, for example, expanded at an average annual rate of 21% over the decade. The growth rate of wholesale and retail trade also exceeded the pace of the economy as a whole. The fast expansion of commerce was reflected in an average rate of growth of about 14.5% annually by the banking, insurance, and real estate sectors.

Manufacturing, which accounted for 18% of GDP in 1972, is still one of the most dynamic sectors of the economy, although in the last few years excess capacity has become a problem in some industries. The sector achieved an average annual rate of growth of 9.5% from 1967 through 1972 compared to 11.4% during the preceeding 5-year period. In part, growth over the last decade reflects the expansion of industry related to agriculture, but acceleration in the growth of other industries, which hitherto had not played a significant role in the Thai economy, was even more rapid. Increased output of cement, refined petroleum, chemicals, and textiles resulted primarily from the expansion of domestic demand accompanying overall growth of the economy.

Major elements in Thailand's impressive economic advance have been its stable political atmosphere, sound economic and financial policies, a high rate of saving and investment, and sizable inflows of foreign capital. The government has restricted its role in the economy largely to programing public investment expenditures within the framework of multiyear development plans. Plans establish targets for the various industrial sectors but rely essentially on market forces for their achievement. Public investment in transportation, power, and communications has been especially important in providing the infrastructure necessary to enhance investment prospects in the private sector. As a result, capital has grown at very high rates. Fixed investment grew at an average annual rate of 14.2% in real terms from 1961 to 1971 and increased its share of GDP from 14.4% to 25.1% over the same period. Over the 10-year period, 68% of investment has taken place in the private sector.

Although recently issued decrees restricting foreign business and the employment of foreigners in Thailand may have a negative impact on future developments, traditionally the government's liberal investment laws have offered strong inducement to foreign participation in the economy. Much of Thailand's recent industrial growth has been spurred by foreign investors, particularly Japanese and Americans, who have taken advantage of a favorable tax structure, a stable and convertible currency, and low-cost labor. Foreign investment has been the principal mechanism for importing management and technical skills, modern designs, and training in modern business techniques.

Despite significant progress in the past several years, the Thai economy is still hampered by several major weaknesses. Future economic growth is threatened by large disparities in incomes among regions, by a high birth rate that has compounded the difficulties of providing an adequate educational system, by Communist-sponsored insurgency in remote rural areas, and by a tendency toward slower growth of merchandise exports and reduced earnings from the U.S. military.

Geographically, economic growth has followed the typically uneven pattern of other rapidly developing nations. The productive power of the nation has tended to polarize in the Bangkok urban area, while the rural areas have lagged far behind. Estimates for 1968 show that per capita income in the central plain amounted to $262, compared to $160 in the south, $114 in the north, and only $82 in the northeast. Even though the share of development expenditures allocated to rural areas has increased, regional disparities have widened. Despite the influx of capital associated with U.S. military construction, per capita income in the northeast has shown little improvement during the past 10 years, while the south and north and even the rural areas of the central plain have grown at a much slower pace than the Bangkok area.

The government has sought—with limited success—to remedy some of the more acute problems of the rural sector with a wide range of transportation, agricultural, and educational programs. The highway program has vastly increased the number of all-weather routes connecting principal towns and provincial capitals. Numerous feeder roads have also been built under the U.S.-supported Accelerated Rural Development (ARD) program. Nevertheless, Thailand's road net is still sparse, and many villages remain inaccessible, especially during the rainy season. Since 1960, extensive investment in irrigation projects has reversed a long downward trend in crop yields, but yields are still among the lowest in Southeast Asia. Production increases have continued to depend significantly on expansion of the cultivated area. In the future, growth in output must increasingly depend on the application of technology to achieve increased yields, because most of the remaining reserve land is of marginal quality. Although Thailand's educational system takes a very large proportion of the budget, educational facilities have not kept pace with the growth in population, and development is hampered by a critical shortage of qualified manpower at all technical personnel at all levels.

Since 1965, Thailand has faced growing Communist-sponsored insurgency, but the pace of economic development indicates that the insurgency, confined to remote areas, has had little impact on the economy. Although the resources required to contain the insurgency could have been used more productively, its threat has awakened Thai authorities to the gravity of social and economic problems in many parts of the country and impelled the adoption of far-reaching programs of improvement which would not otherwise have been attempted at the time. National security expenditures have substantially increased, and since U.S. assistance began dropping off in 1968, they have taken an increasing portion of the budget through FY/1973.[1] In the event of a more serious insurgency problem and/or continued deterioration of the military situation on its borders, even greater security demands would be placed on Thailand's already strained resources, and severe cutbacks in development programs would be necessary.

International trade is of vital importance to the Thai economy. The combined value of imports and exports in 1972 amounted to about $2.6 billion, an amount equivalent to over one-third of GDP. Thailand is almost entirely dependent on imports for capital goods needed to maintain and develop the economy, for many industrial raw materials, and for a large portion of its manufactured consumer goods. Despite some success with diversification, its export base remains narrow, and earnings are highly susceptible to world price fluctuations. In 1972, 51% of export earnings stemmed from sales of five commodities: rice, rubber, tin, corn, and tapioca, with other agricultural products making up the bulk of the remainder; exports of manufactured products are small but growing rapidly. Japan is Thailand's principal trading partner for both imports and exports, followed by the United States. Thailand sells most of the remainder of its exports to other Southeast Asian countries, but it depends largely on Western countries for the remainder of its imports. Imports consistently exceed exports, and trade deficits have widened as the demand for some traditional exports stagnated, and imports of both consumers' and producers' goods grew apace.

Thailand's balance-of-payments position began to deteriorate in 1967 after many favorable years, although this trend was masked by certain special factors in 1971-72. For most of the 1960's increasing trade deficits had been more than offset by capital imports, foreign borrowing, and earnings from tourism. The fortuitous infusion of $560 million from U.S. military spending during the 1966-68 period largely offset the retarding effects of drought and lagging exports. Poor growth performance of exports in 1969-70, however, was accompanied by a decline in U.S. military spending and a reduction of private investment, resulting in a sizable loss of reserves over the 2-year period. These losses were recouped over the next 2 years as exports made large gains, Vietnam-related spending in Thailand increased after mid-1971, and tourist receipts increased.

[1] The Thai fiscal year includes a period from 1 October to 30 September of the following year, it is designated by the year in which it ends.

In the coming years, the deteriorating trend is expected to continue. Export volume will probably decline sharply in 1973, although record high prices of most agricultural exports will offset the loss while foreign demand for Thai agricultural products is expected to remain strong at least through 1975. Over the longer term, growth in export earnings may fall off. This is most likely in the case of rice as traditional importing countries move closer to self-sufficiency. The outlook for other agricultural exports is mixed but, on balance, it does not suggest rapid growth. Despite government austerity measures, imports are expected to continue increasing, since Thailand is almost entirely dependent on imports for capital goods, for much industrial raw material, and for a large portion of its manufactured consumer goods. Based on a projected widening of the trade gap, and expected further reduction in U.S. military spending, prospects are for a decline in reserves over the next 5 years. Thailand's healthy reserve position, however, leaves a comfortable margin for financing balance-of-payments deficits.

B. Structure of the economy (U/OU)

1. Agriculture, forestry, and fisheries

Agriculture, forestry, and fishing constitute by far the most important sector of the Thai economy. Together, these components account for the largest single share of national output—some 30% in 1972. Statistics on national output, however, tend to understate the true importance of agriculture to the economy, in part because of undervaluation of the considerable portion of agricultural output consumed on the farm. More indicative of agriculture's importance is the fact that, according to the most recent estimates, the sector employs about 75% of the labor force. Agriculture has also accounted for at least 80% of Thailand's export earnings over the last 5 years. Rice and rubber have traditionally provided the bulk of these earnings, but in the period 1961-71, their combined contribution dropped significantly, from 57% to 28%, while exports of other agricultural commodities, particularly corn and tapioca, increased their shares. Thailand is self-sufficient in most basic foods, although some agricultural items must be imported. Imports of foodstuffs—such as dairy products and wheat—totaled $34 million in 1971, or about 3% of total imports. The most significant agricultural imports, however, are raw cotton and unmanufactured tobacco for use in Thailand's manufacturing sector.

Agricultural production is dependent on unpredictable monsoon rains, which, except in the extreme southern portions of the country, occur from mid-May through September. The major agricultural region is located on the central plain of the Mae Nam Chao Phraya, a river that has its sources in the northern mountains. This broad alluvial plain and delta system benefits from the deposit of rich silt during annual flooding, and through a long history of canalization, has become the area of intensive rice cultivation. Other regions are relatively less favored agriculturally. The narrow peninsula of the south is the only region in which rain falls the year round, but mountain ridges extend almost to the sea in many areas along the western coast, limiting rice land largely to the coastal plains of the east. Rubber is grown extensively on the infertile sandy and clay soils in the far south. Farmland is scarce in the seven provinces of the north and is limited to narrow valleys and adjacent slopes, where the naturally irrigated soils are relatively fertile. At higher elevations, upland rice and other crops are grown under the method of shifting cultivation. The northeast, where rainfall is less abundant and more erratic, is the most poorly endowed region. Flat terrain and inadequately drained soils in the area make effective irrigation difficult, and the region suffers from both flood damage in the rainy season and serious droughts in the dry season. Unlike the central plain, flooding provides little positive effect in the northeast, since the silt is composed mainly of sandstone, which does little to revitalize the soil.

Of Thailand's total area of 128.5 million acres, farmland in 1965 accounted for some 30 million acres, 82% of which was under cultivation (Figures 2 and 3). The following shows the percentages of land area and total farmland accounted for by each region in the mid-1960's:

	Land area	Farmland
Central	36	43
Northeast	33	33
North	17	6
South	14	18
Total	100	100

The predominance of the central plain is explained by both the physical factors cited above and its proximity to the major markets and ports. In the last few years, the central region's share of cultivated area has probably decreased, since most of the expansion in crop acreage seems to have been in other regions, particularly in the northeast. Some virgin land is still available outside the delta region, but in most areas all arable land is already being cultivated.

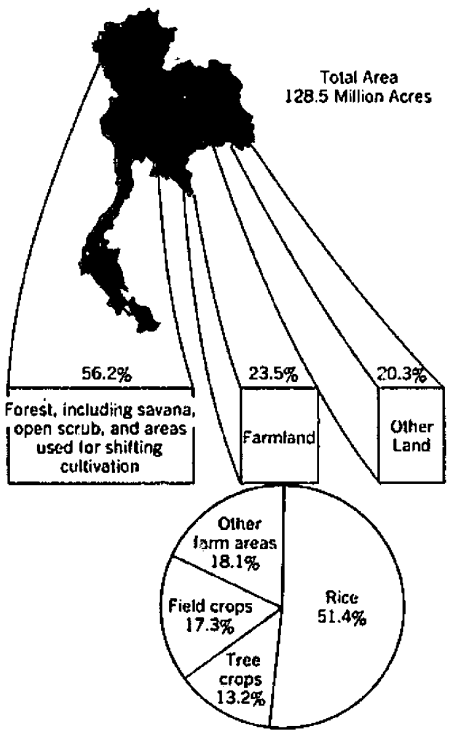

FIGURE 2. Land use, 1965 (U/OU)

In contrast to many less-developed countries, problems of land tenure are not particularly pressing. The last agricultural census in 1963 revealed that nearly 83% of farmers owned all or part of the land they cultivated. Tenancy is virtually nonexistent in the insurgent-troubled northeast. It is more prevalent in the central plain, where one-third to one-half of paddy fields are tenant-operated.

Lack of clear land titles and the fragmented nature of holdings, however, are serious constraints on government-sponsored land development plans, particularly in areas outside the central plain. Traditionally, farmers have been able to obtain land merely by clearing and cultivating it. This system prevailed to some extent even after official titles were instituted at the turn of the century. Until recently, farmers in many areas have been able to secure land rather easily by complying with liberal and often-ignored government regulations. As a result, only 22% is held under titles that confer less than full ownership. Land in this category is normally unacceptable as collateral against loans. Holdings average about 10 acres in size, and are often divided into widely scattered parcels. Inefficient utilization of irrigation and inability to use modern equipment result from this fragmentation.

For these, and other reasons, introduction of new techniques has been rather slow in Thailand, and farming by traditional methods still predominates. Crop rotation is rarely practiced. Planting and harvesting are generally done with handtools and draft animals; modern equipment is scarce and is used mainly on larger farms or by farmers' cooperatives. Annual fertilizer usage, which averages about 7 pounds per acre, has tripled since 1960, but it is still lower than in many Asian countries, primarily because

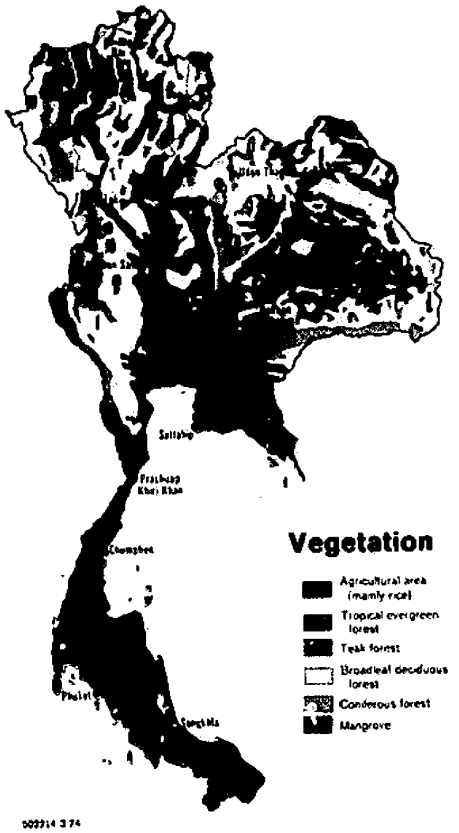

FIGURE 3. Vegetation (U/OU)

of the relatively high fertilizer costs that have resulted from protecting an inefficient domestic industry.

The problem of water control remains a great obstacle to increased productivity. Water for dry season crops is available only on a fraction of the irrigated land. In the central plain virtually all water for irrigation is provided by the overflowing of the rivers in the Mae Nam Chao Phraya system. Dams and canals help to disperse the water spilled over the land. This method supplies a constant flow of water while the rivers are in flood-stage, but does not provide for regulation of water levels in individual fields; thus, it is not suitable for cultivation of the new high-yielding varieties of rice that require precise water control. Throughout much of the plain, the water supply is too high at its maximum for any crop other than rice and too low at its minimum for any crop to follow rice.

For lack of a year-round water supply, double-cropping is restricted to small areas. The pattern of double-cropping prevailing in the north is rice for the first crop, followed by tobacco, peanuts, soybeans, or garlic. Sometimes, however, another crop of rice is grown. A second crop of rice predominates in the rest of the country's double-cropped area, but some corn, sorghum, peanuts, soybeans, mung beans, and various other vegetables are also planted.

Thai farmers, although ill-equipped in both technology and resources, have, nevertheless, been responsive to market incentives, as reflected by the significant expansion of crops such as corn, cassava, and kenaf. The incentives plus effective government programs for improving transportation, providing irrigation facilities, and informing farmers of profitable opportunities have been largely responsible for some widening of Thailand's agricultural export base.

a. Rice

Rice is the mainstay of Thailand's agriculture and has retained its preeminent role despite the rapid development of other crops. It is grown in all parts of the country and, with the exception of the south and in some years the northeast, is at least sufficient for domestic needs. Production is still concentrated in a single annual crop harvested from November through January. The central area, stretching some 250 miles north from Bangkok, accounts for the bulk of the nation's output. The most recent regional breakdown of rice planting, production, and yields is given in Figure 4.

Most Thai rice is of the wet, or lowland, variety, and the remainder is mainly floating, or deep-water, rice, which is broadcast rather than transplanted. Only limited quantities of upland rice are cultivated by hill tribes. The nonglutinous type of rice predominates, but local tastes in the extreme north and northeast favor the glutinous or sticky type, which accounts for about one-third of total rice production.

FIGURE 4. Production, area, and yields of rice (U/OU)

	1967	1968	1969	1970
Area planted (1,000 rai):*				
Central and North	22,730	21,907	23,440	22,510
Northeast	15,420	19,101	20,240	20,070
South	3,460	3,300	3,720	3,520
Total	41,610	44,308	47,400	46,100
Production (1,000 metric tons):**				
Central and North	7,500	7,210	7,850	7,900
Northeast	2,820	4,306	4,580	4,460
South	870	983	980	910
Total	11,190	12,499	13,410	13,270
Yields (kilograms/rai):				
Central and North	320.9	329.1	334.8	350.9
Northeast	182.9	225.4	226.2	222.2
South	251.4	297.8	263.4	258.3
Average yield	268.9	282.1	282.9	287.8

*2.2 rai = 1 acre.

**Thailand's National Statistical Office production totals are inconsistent with those provided by Thailand's Ministry of Agriculture (Rice Department) as shown in Figure 5.

FIGURE 5. Production of principal crops (U/OU)
(Thousands of metric tons)

	1960	1968	1969	1970	1971	1972* (ESTIMATED)
Paddy rice	6,770	9,595	10,770	13,345	13,400	14,200
Rubber	160	260	280	285	325	*na*
Corn (maize)	315	1,500	1,700	1,950	2,300	1,350
Cassava roots	1,085	2,010	2,700	3,000	3,300	*na*
Sugarcane	4,380	5,880	6,740	7,385	5,925	9,400
Mung beans	45	185	200	210	250	*na*
Peanuts	125	160	180	185	200	220
Soybeans	25	45	60	60	90	85
Sesame	15	20	20	20	30	25
Coconuts	905	1,100	1,110	1,110	*na*	*na*
Castor beans	35	40	40	55	55	45
Seed cotton	35	130	130	50	80	40
Jute	*na*	5	5	5	*negl*	*na*
Kenaf	30	315	350	300	370	430
Tobacco	25	90	90	95	100	99
Sorghum	*na*	55	70	130	135	130

na Data not available.
*Crop year 1972/73.

Paddy production, although subject to wide year-to-year fluctuations, has increased appreciably over the last decade (Figure 5). Output reached 14.2 million metric tons in 1971/72 compared to 8.2 million metric tons in 1961/62. Estimates indicate a drastic decline in production to 11.7 million metric tons in the 1972/73 crop year. Official statistics show that since the turn of the century, growth in paddy output has depended heavily upon increases in rice acreage; and for decades a long downward trend in yields persisted as poorer quality land was brought under cultivation. Only since 1960 has extensive investment in irrigation projects reversed this declining trend. By 1971/72 rice yields were 31% above their 1961/62 level, while the cultivated area in rice showed a 30% increase over the 10-year period. Nevertheless, yields of rice are still among the lowest in Asia. Because most of the remaining unused land is of limited potential, further growth in rice output will depend primarily upon increasing yields.

Faced with the critical need to satisfy the demands of a rapidly expanding population and to maintain a large exportable surplus, the government has initiated a number of programs specifically designed to promote intensive rice cultivation. Under the first two National Economic and Social Development Plans (1961-66) and 1967-71), several major flood control and irrigation projects were completed. The Third Plan (1972-76), which envisages an average rate of growth in agriculture of 5.1%, projects major improvements in the distribution of water from existing dams, rather than more spending on additional large projects. Additional goals include improving crop yields by adopting modern techniques, strengthening the institutional framework, and connecting more rural areas with urban markets by concentrating on improvement and expansion of provincial roads.

The government has also sponsored efforts to develop improved rice seed varieties. The new high-yielding "miracle" varieties of rice such as IR-5 and IR-8 have not been planted to any significant extent, since they are short-stemmed and require more water control than is generally available in Thailand. The Rice Department has, however, officially accepted three new varieties of rice resulting from backcrossing with IR-8. The new varieties—RD-1, RD-2, and RD-3—produce high quality grains and have greater yields than IR-8. RD-1 and RD-3 are white nonglutinous varieties, and RD-2 is glutinous. Research is being done to develop a new variety that can grow to different heights, depending on the water level.

In an effort to eliminate obstacles to increased production and export of rice, in 1970 the government began relying less on the so-called "rice premium." The premium, in effect an export tax, has the dual purpose of providing revenues while maintaining low domestic prices for rice consumers. Artificially depressed prices, however, tend to discourage production, and the premium was abolished for most categories of rice in November 1970. It had to be

reintroduced, however, in September 1972 as world supplies of rice began tightening, putting upward pressure on domestic prices. Another government policy, price supports for paddy, has been in effect since 1966 as a guard against an unacceptable decline in farm prices. The government has rarely been a buyer of last resort, however.

Rice is also the country's largest export commodity. In 1972 rice exports reached a record 2.1 million metric tons, valued at $213 million, or 19.5% of total exports. The volume of rice exports previously had peaked at 1.9 million tons in both 1964 and 1965, but then declined in subsequent years. Curtailment of exports following the short crop in 1967/68 resulted in total exports in 1968 of barely over 1 million tons. Exports remained at that level through 1970, rising to 1.6 million tons in 1971. Partially because the 1972 record exports drew heavily on Thai stocks, 1973 exports of rice are projected to be comparatively low, perhaps little more than 1 million tons. Although faced with very high world demand, in June the Thai Government was forced temporarily to ban any new rice commitments to foreign buyers in order to ensure adequate domestic supplies.

b. Other crops

In addition to rice, a wide variety of food crops is grown throughout Thailand. Many are very significant in domestic consumption, but with the exception of corn, cassava and sugarcane, they play a minor role in international trade. Among the most important fruits are bananas, pineapples, watermelons, papayas, mangos, mangosteens, citrus fruits, longan, and tamarinds. Commercial vegetable farming is concentrated near Bangkok, but it has expanded greatly in other urban areas during recent years. Vegetable production includes various cabbages, eggplant, cauliflower, pumpkins, tomatoes, bamboo shoots, and greens. These are typically grown by ethnic Chinese in intensively cultivated gardens. Corn, next to rice, is Thailand's most important grain crop and its second most important export.

Rising demand in foreign markets has led to spectacular increases in corn production, eventuating in a significant share (at least 5%) of world exports. Output rose from some 50,000 tons in the early 1950's to more than 2 million tons in 1971. The rapid growth in production was brought about essentially by farmers' responding to market forces, with virtually no direct assistance from the government. Nearly all corn grown is a Guatemalan variety of yellow flint used as feed for livestock and poultry. Usually the crop is planted in March-April and harvested in July-August. Average yields are low, but the relatively short growing season of 90 to 120 days allows farmers a second planting of corn or some other crop in the July-September period. The bulk of the corn is produced in the central region, with most of the remainder coming from adjacent areas in the northeast. Increasing amounts of corn are used domestically, but most is exported, mainly to Japan and Taiwan. Exports amounted to some 1.8 million tons in both 1971 and 1972, although price declines dropped the value from $105 million to $95 million. Because of the setback in 1972 production caused by drought, export tonnage in 1973 will be sharply reduced.

The next-ranking grain crop is sorghum. Production of sorghum increased significantly after its introduction to Thailand in the early 1960's. Exports reached 100,000 metric tons in 1966, declined in the next 3 years as low farm prices and other factors caused farmers to shift out of sorghum, and rose again in 1970. In 1971 record exports of 131,000 metric tons netted $7.5 million, and 1972 exports are estimated to have been at about the same quantity and value.

Growth in foreign demand also spurred the production of cassava, Thailand's fifth-ranking export. An unimportant crop in 1956, cassava has become the principal cash crop in southeastern Thailand, particularly in the provinces of Chonburi and Rayong. Planting begins in these provinces in November and elsewhere, generally in May. The crop can be harvested 7 to 8 months after planting, but requires 15 months for best weight and quality. Production of cassava roots tripled over the last decade, reaching 3.3 million tons in 1971, and only a small share was consumed domestically. Some cassava is processed domestically into flour for use in food preparation, but most is pelletized and exported for use as a fattening agent in animal feed compounds. Cassava exports in 1972 amounted to 1.3 million metric tons, valued at $74 million. EEC countries, particularly the Netherlands and West Germany, are the largest customers for tapioca pellets, and the United States takes considerable amounts of tapioca flour.

Under government encouragement to curtail imports of refined sugar, sugarcane production rose from 4.4 million metric tons in 1960 to 9.4 million metric tons in 1972. Sugarcane is grown principally on small farms; however, a number of major mills have their own plantations. Chonburi Province in southeastern Thailand is the center of sugar cultivation, although some cane is grown in all regions. Sugarcane is generally planted in March-May, and milling begins in November. Sugar

production in 1972 was estimated at 685,000 tons compared to 580,000 tons in 1971. Exports of raw and plantation white sugar, have become an important foreign exchange earner, reaching 427,000 metric tons in 1972 (valued at $60 million) compared to 175,000 metric tons (valued at $18 million) in 1971. In July 1971, Thailand withdrew from the International Sugar Organization and since then has had little difficulty marketing its sugar surpluses abroad. It sought reentry to the organization in 1973, however, as a guarantee of markets in the future.

Thailand ranks fifth among the world's coconut producers, but its role in world trade in this commodity is negligible, as about nine-tenths of production is consumed fresh domestically, thereby providing a major source of fat in the diet. Coconut palms are planted throughout the country, but production is concentrated in the peninsula and in the coastal areas of the central region. Annual production is on the order of 1 million to 1.5 million tons from approximately 22 million bearing palms. Some trees bear year-round, but the bulk of the harvest is from October through January. Exports of copra (dried coconut meat) reached 11,273 metric tons in 1972. Coconut oil production, however, does not even meet the modest domestic demand, and small amounts are imported.

Tobacco has become a very important cash crop both in the north and to a lesser extent in the northeast. The bulk of the crop is harvested in February. Thai farmers grow both a native sun-dried and a flue-cured Virginia variety. Production of the latter is largely under the control of the Thailand Tobacco Monopoly, a government commercial enterprise which maintains a strict monopoly on the manufacture and sale of cigarettes. Leaf is sold to independent curers, however, as well as to monopoly-owned curing barns. In addition, private exporters may buy the excess over the monopoly's purchase quotas. Total production of all types of tobacco reached an estimated 99,000 tons in 1972, of which the Virginia variety accounted for about half.

Tobacco exports have grown markedly because of increased demand from Thailand's principal buyers: West Germany, the United Kingdom, and Japan. The widespread embargo against Rhodesian tobacco has also stimulated production of Thai flue-cured tobacco. Indigenous Thai varieties, by contrast, represent only a small portion of total exports. In 1972 total tobacco exports were an estimated 18,000 tons valued at $14 million, compared to only 1,500 tons valued at $1 million in 1960. Thailand also imports large amounts of better-grade leaf primarily for blending in the production of domestic cigarettes. Imports in 1972 (almost entirely from the United States) were valued at $28 million, or twice the value of tobacco exports.

c. Industrial crops and forestry products

Industrial crops consist primarily of rubber and various fibers. Virtually all rubber is produced in the southern half of peninsular Thailand and in the southeastern tip of central Thailand, where heavy rains favor its growth. Thailand is the world's fourth-largest supplier of natural rubber, but it still accounts for only about 7% of a large world market. Almost all rubber is exported, only a small share being retained for domestic production of tires, tubes, and footwear. Despite a steadily increasing volume of exports since 1960, declining world prices have sharply reduced earnings from this crop. In 1972 rubber exports reached a record 325,000 tons valued at $92 million, compared to 169,000 tons 1960 valued at $124 million. Rubber accounted for roughly 10% of exports in 1972, making it Thailand's third most important agricultural commodity after rice and corn.

The rubber industry has a number of basic problems. In contrast to the efficient system of estate cultivation in Malaysia, it is based on fragmented holdings averaging less than 8 acres in size. Trees are overaged, and yields are very low. Poor handling and crude processing methods result in production of poor quality sheet, with less than 10% being rated first-grade. In addition, competition from synthetics is expected to cause the long-term downward trend in rubber prices to continue.

Kenaf, kapok, and cotton are the principal fiber crops produced, with kenaf (a substitute for jute) being by far the most important. Grown almost exclusively in the northeast, where it is the principal upland crop, kenaf is used primarily in the production of gunny bags; however, small quantities are used for ropemaking. Kenaf production, only 27,548 tons in 1959/60, reached a peak of 657,000 tons in 1966/67, largely because of favorable government programs and price incentives. Exports in 1966 amounted to 473,000 tons, valued at $78 million, making it Thailand's third-ranking export in that year. Annual kenaf output has varied widely with conditions in foreign markets, particularly India and Bangladesh, but since 1966 it has shown a significant downward trend. In 1972 increased local use of kenaf in the production of gunny bags for export offset much of the decline of raw fiber exports. In 1972 gunny bag exports amounted to 251,000 tons valued at $52 million. The overall outlook for kenaf exports is unfavorable, however, unless new uses for the crop are found

through research. Trade is also hampered by Thai problems in quality control as well as the lack of a dependable water supply for retting, a highly labor intensive process of separating fiber from stock.

Kapok and cotton together occupy a substantially smaller planted area than kenaf, but they do have important uses in Thailand. Kapok production, mainly in the northeast, is about 100,000 tons of fiber annually. This silky white fiber is used domestically for furniture and mattress stuffing. Exports have shown no significant change in the last decade, averaging about 18,000 tons annually and amounting to about $7 million in 1972. Cotton is cultivated in a number of areas but is centered in Sukhothai and Loei Provinces. Production received a number of severe setbacks in the last few years. The area planted in the 1969/70 season declined by one-third, after the previous year's crop was hit hard by drought and insect damage. This drastically reduced area again suffered from drought and insects, which reportedly destroyed 40% of the crop. As a result, output of seed cotton in 1970 amounted to 50,000 tons (compared to 130,000 tons in 1968) and had fallen to 40,000 tons by 1972. The supply of raw cotton is far below domestic requirements, and the outlook for substantial increases in output is not good because many farmers have abandoned cotton as a cash crop as a result of the high risks.

d. Livestock

Thai livestock production, which probably accounts for somewhat more than 10% of total agricultural output, is still rather backward, although there have been substantial signs of progress in recent years. Less than one-half of total production is commercially slaughtered.

Pork is the principal meat consumed in Thailand. Water buffaloes and cattle are present on most farms but are sold for meat only when they are no longer useful as draft animals. There are very few dairy cattle in the country, but attempts are being made to introduce them. Consumption of milk, especially condensed milk, is increasing, and dairy product imports in 1972 amounted to $28 million. Large numbers of poultry are grown throughout Thailand, and poultry and eggs account for more than one-third the value of all livestock production. The livestock population on farms in 1970, according to unofficial estimates, was as follows, in thousands:

Water buffaloes	5,734
Cattle	4,667
Hogs	5,132
Chickens	58,791
Ducks	7,109

There are no direct government support payments for livestock production; however, in an effort to improve the quality of livestock, the government has established 15 livestock stations throughout the country to provide artificial insemination of livestock at a nominal cost. Despite the relatively small output of livestock products, some 40,000 head of cattle and 10,000 tons of hides and skins were exported from Thailand in 1972.

e. Fisheries

Fishing is one of the fastest-growing economic activities in Thailand, the total annual catch rising from 256,000 tons in 1960 to 1,587,000 tons in 1971. Fish provides a large portion of animal protein in the Thai diet, and fishing has traditionally played an important role in the economy of southern Thailand. It currently accounts for about 4% of GDP.

The share of marine fish in the total catch increased from 70% in 1962 to 93% in 1971, largely because of the increased use of motorized trawlers. Almost 80% of the marine catch comes from the coastal waters of the Gulf of Thailand. The government has had some success in promoting deep-sea trawling, but fishing in the Andaman Sea is still relatively unexploited. Principal species landed include duck fish, mackerel, shrimp, and other shellfish. Probably only a fraction of Thailand's freshwater catch is recorded; subsistence fishing in inland waters is important and widespread, and this catch should continue to increase with the growing numbers of large inland impoundments.

A small but increasing portion of the value of Thailand's exports is derived from fish and fish products. In 1971 exports, principally to Malaysia and Japan, totaled 32,223 tons, valued at $21.6 million. These consisted mostly of shellfish, particularly shrimp, which alone accounted for 55% of export earnings from fish products. The volume of shrimp exports, however, actually shows a declining trend from the high of 8,829 tons reached in 1967, largely because of increasing domestic consumption. Rising prices in world markets have maintained average exports for the last 5 years at about $12 million annually. Thailand's Third Plan calls for reversing the decline in export tonnages and increasing shrimp exports to 14,000 tons by 1976, more than doubling the 6,200 tons exported in 1971.

f. Forestry

Forests cover 72 million acres, or about 56% of Thailand's total land area, but only one-half of that is accessible because of a poorly developed road system and dense vegetation. Moreover, heavy cutting of

timber has depleted much of the readily accessible stock. The contribution of forestry to GDP, which amounted to some 5% in 1950, has steadily declined for the last several years to only about 2% in 1972. Nearly all forests are state-owned, and government regulation has been imposed somewhat belatedly to protect existing reserves. In 1970 it was estimated that illegal cutting amounted to twice that legally harvested by the Forest Department. Replanting of teak, an important forest product grown in the north, has been extremely slow. Official figures show that teak production—although well below the high reached in the 1950's—expanded from 105,665 cubic meters in 1961 to 228,300 cubic meters in 1970. Teak is still Thailand's most important forest product in terms of foreign exchange earnings, although its importance steadily declined through the 1960's with more domestic use of teak. Exports amounted to 29,000 tons in 1970, compared to 100,000 tons in 1960. In the last 2 years, however, exports showed a substantial rise, reaching 40,000 tons in 1972, valued at $10 million.

The forests also provides yang, valued for its timber and resin, and a variety of other useful woods. Yang production during the 1960's followed the same pattern as teak, with exports declining as output increased. Exports dropped steadily from 107,000 cubic meters in 1960 to an estimated 15,000 cubic meters in 1970, then rose to 24,000 cubic meters in 1972, valued at less than $1 million.

Extraction of firewood and charcoal totaled about 1.6 million cubic meters in 1970. Official figures show that both have recently declined in importance with the increased use of other fuels. Other forest products include the all-important bamboo, with its varied uses ranging from house construction to fishing poles; several types of gums and oils that are also used for a variety of purposes; and three forms of lac.

2. Fuels and power

Thailand is poor in energy resources. Petroleum products are by far the most important primary source of energy, accounting for more than four-fifths of reported consumption. Virtually all crude oil is imported. Although traces of oil have been found in the Gulf of Thailand, commercially exploitable crude oil deposits have yet to be confirmed. Actual production of crude oil is confined to a small pumping station in the Fang Basin that supplies less than 1% of annual crude oil requirements. Hydroelectric power, of increasing importance but still a relatively new source of energy, provides about one-seventh of reported energy consumption, while lignite accounts for only about 2%. Although data are unavailable on other energy sources, firewood, charcoal, rice husks, and similar agricultural wastes are significant fuels for commercial and domestic uses in rural areas.

Petroleum refining was the most rapidly growing industry during the 1966-71 period, expanding at an annual rate of 15.5% (Figure 6). Until 1964 a small refinery at Fang was the only processing facility in the country. Since that time, three more refineries have started producing. The Thai Oil and Refinery Company, Ltd. (TORC), at Si Racha, with a 65,000-barrel-per-day (b.p.d.) capacity, is the country's largest producer of gasoline and also produces large quantities of diesel oil, jet fuel, and kerosene. The Summit Industrial Corporation refinery at Bang Chak, a Bangkok suburb, with a 65,000-b.p.d. capacity, produces liquefied petroleum gas, light naphtha reformates, kerosene, jet fuel, gas, and diesel oil. The other refinery is the ESSO Standard Thailand, Ltd.

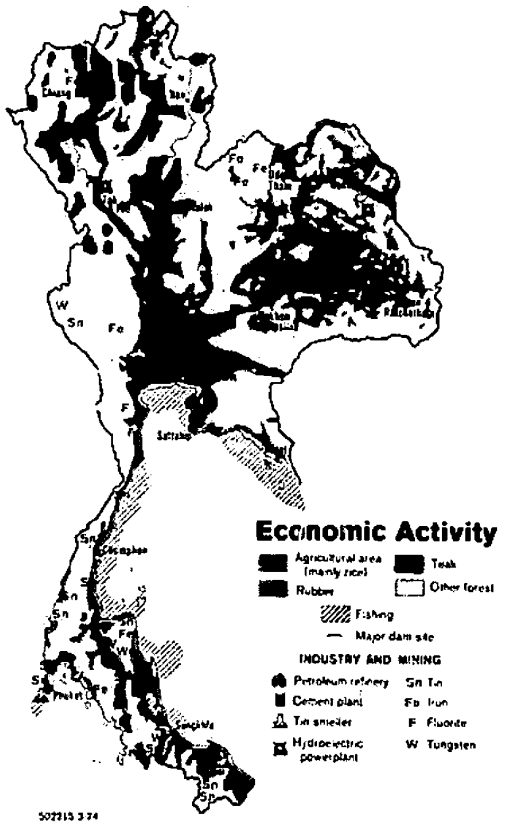

FIGURE 6. Economic activity (U/OU)

facility, which opened in February 1972 at Si Racha. This plant has a capacity of 35,000 b.p.d. and produces automotive diesel oil, jet fuel, light and medium fuel oil, kerosene, and five grades of asphalt. Although domestic consumption, estimated at 100,000 b.p.d., is well below capacity of the existing refineries, a fourth plant is now under consideration, which would have a 50,000 b.p.d. capacity and would distribute petroleum products by means of an overland pipe system. Despite the surplus capacity, Thailand still imports large quantities of refined products, principally diesel oil, lubricants, and special fuels.

Thailand's only significant solid fuel is lignite (brown coal), which has been mined since 1957 and is all consumed domestically. Production of lignite from the two existing mines reached a high of 445,000 tons in 1971. The one at Krabi provided fuel to a 60,000-kilowatt powerplant on the southern peninsula. The other—at Mae Mo in the north—supports both a powerplant and a fertilizer plant. Both lignite-fired powerplants are under the control of the Electricity Generating Authority of Thailand (EGAT). The country has no known deposits of exploitable natural gas or coal, and nuclear generation is still in the planning stages.

Thailand's electric power industry has expanded considerably in support of the growing national economy. Installed capacity reached 1,615,000 kilowatts (kw.) at the end of 1972, having more than doubled since 1968. Production during 1972 amounted to about 6.2 billion kilowatt hours (kw. hr.), corresponding to a per capita output of 170 kw. hr. Over two-thirds of the national capacity is in thermal plants (almost all of which are petroleum-fired), and the others are in hydroelectric facilities.

Development has been aimed at satisfying a steadily increasing industrial demand. The significant gain in power capacity during the past 5 years is reflected in a 23% average annual increase in consumption. This orientation toward industry has led to a concentration of power use in larger urban complexes, resulting in a low national level of electrification. In the Bangkok metropolitan area, the largest consumer center, service is provided to approximately 60% of the people. Nationally, however, less than 20% of the total population and only about 10% of the rural inhabitants use electricity.

Operation of the predominantly government-owned power industry is distinctly centralized, although there are some significant regional facilities. EGAT is the principal controlling organization, accounting for almost all of the power output. The very small balance is provided by another government agency, the Provincial Electricity Authority (PEA), which is responsible for rural power, and by industrial plants for their own use. Three large installations contain nearly three-fourths of the total capacity, and four others represent almost an additional 10%. Two of the three major facilities are thermal plants in Bangkok: Bangkok South has a 460,000-kw. capacity and Bangkok North has a 267,500-kw. capacity. The third is the 420,000-kw. Yan Hee hydroelectric plant in the north. Yan Hee is the principal supplier to the country's transmission network, serving the north-central region, including the capital city. A regionally important powerplant in the south is the 60,000-kw. Krabi thermal plant, which supports a small local transmission network. In the northeastern region, three hydroelectric plants—the 40,000-kw. Nam Phrom plant, the 25,000-kw. Nam Pong plant, and the 24,000-kw. Lam Dom Noi plant—are the major suppliers. The northeastern area also is supplied with power purchased from the 30,000-kw. Nam Ngum Hydroelectric plant in Laos under a 10-year contract signed in June 1971. These four hydroelectric plants and the Yan Hee Hydroelectric plant account for 40% of national production. The four are joined into a transmission system which provides local service and also is interconnected with the main network for added flexibility.

The heavy concentration of power consumption in larger cities is reflected in the design of the transmission networks. The three main systems, serving the north central, northeastern, and southern areas, are intended primarily for channeling electricity for the main load centers to the neglect of smaller towns and rural areas. Bangkok, the country's largest urban area and principal industrial and commercial hub, consumes nearly three-fourths of all available electricity. Nationwide, industry accounts for about two-thirds of the total consumption and domestic and commercial users for most of the remainder.

Scheduled development calls for an increase in national capacity by over 2 million kw. by the end of 1980, which will more than doule the end-1972 capacity. During the 1973-75 period, principal projects to be undertaken are the expansion of the Bangkok South thermal plant by two 300,000-kw. units and construction of the 375,000-kw. Sirikit hydroelectric plant in the north. Both are financed partly by loans from the International Bank for Reconstruction and Development, as were the Yan Hee and some other plants in the past. The new capacity will permit extension of the transmission networks; the system in the south is to be linked to the Bangkok area, and an additional connection from

Sirikit to Bangkok will strengthen network integration. Other interconnections to the northeastern area will join the major plants into a national network.

Expansion in the period from 1976 to 1980 is to be accomplished mainly through construction of the 360,000-kw. Quae Yai hydroelectric plant northwest of the capital city, the 150,000-kw. Mae Moh thermal plant at a lignite mine in the north, and the country's first nuclear powerplant of about 500,000 kw. near Bangkok. The decision to establish a nuclear facility was influenced by the absence of domestic fossil fuels, a limited hydroelectric potential, and the need to reduce reliance on high-cost petroleum imports. Development also is projected for the Mekong river in the northern border area with Laos, under the auspices of the international Mekong Committee.

A long-range project envisages gradual electrification of rural areas over a period of 25 years, providing power to a large segment of the population and thus altering the pattern where service is available only to larger urban centers. Still in the planning stages, rural electrification is recommended by the United States Agency for International Development. USAID would share the foreign exchange portion of the total cost of US$650 million with the International Bank for Reconstruction and Development and the Asian Development Bank. The ultimate goal is to furnish power to 40,000 villages, thereby extending electricity to an additional 4 million people.

3. Metals and minerals

Mining is important to Thailand's foreign trade but is a relatively minor economic activity in the context of total national output. In 1972 mineral exports were valued at $110 million, about 13% of total export value, but this sector accounted for only 2.1% of GDP. Some 750 mines provide jobs for about 50,000 workers, or about 0.3% of the country's labor force. Recently, the annual rate of growth of mining output has slowed significantly, from 10.3% during 1965-68 to 3.7% in 1969-72.

Tin is Thailand's leading primary product outside the agricultural/forestry sector, accounting for 65% of the value of mine output and 70% of mineral exports. Peninsular Thailand is the main producing area, particularly the area extending southward from Ranong to Ko Phuket island. About 60% of Thailand's tin is recovered from hydraulic and gravel-pumping operations. Onshore mining is done on small, individually-owned claims that can be worked cheaply by these methods. The move to offshore areas with dredges, however, is expected to gain momentum over the next few years as the more accessible land deposits show signs of depletion.

Tin ore production remained at about 30,000 tons annually from 1968 through 1972 (Figure 7). A tin smelter, owned by Thai Smelting and Refining Company (Thaisarco), a joint venture with Union Carbide, was completed in 1965 at Phuket. Exports of tin ore were curtailed in that year by the government, and the company, given monopoly buying rights, has since done all initial processing of tin concentrate in Thailand. The country's tin metal exports have declined in both quantity and value from the high reached in 1967—26,997 metric tons valued at $88 million—to 21,351 metric tons valued $80 million in

FIGURE 7. Mineral production (U/OU)
(Thousands of metric tons)

	1966	1968	1969	1970	1971	1972
Tin ore	16,755	32,765	28,795	29,730	29,610	30,130
Tungsten ore	405	965	1,265	1,380	3,515	5,843
Lead ore	4,600	6,475	4,230	3,035	5,525	3,785
Antimony:						
Ore	*na*	425	1,500	5,545	5,395	11,170
Metal	*na*	380	245	155	85	20
Manganese ore:						
Battery grade	530	5,855	4,225	6,475	5,095	5,415
Metallurgical grade	*na*	35,215	25,595	17,380	8,885	14,415
Chemical grade	*na*	*na*	115	*na*	*na*	25
Iron ore	11,475	490,505	477,395	22,525	30,530	27,820
Gypsum	13,000	128,095	92,035	144,250	107,905	89,805
Lignite	107,785	305,335	347,810	399,870	445,085	345,485
Fluorite	3,460	245,105	297,560	317,850	426,500	395,070
Marl	434,475	1,024,200	1,533,940	633,795	489,730	372,185

na Data not available.

1972. Nearly all tin metal is sold to the United States, Japan, and the Netherlands.

The flow of foreign capital to large offshore mining projects supports a trend toward higher technology in Thailand's tin industry. The country's first cutter suction dredge was put into operation in 1972 off Phuket by Thailand Exploration and Mining Company (TEMCO), another joint venture with Union Carbide. Other U.S. interests have also moved into tin mining operations. Alcoa and Bethlehem Steel, each with 22% of the shares, have joined with British investors in Associated Mines, a new venture which has leased offshore tin properties.

Thailand's annual tin production could fall off in the transition to further offshore mining. In the first quarter of 1973, price declines forced the International Tin Council, of which Thailand is a member, to impose export quotas on producers for the first time in 3 years. Initially optimistic projections for 1973 tin production and sales have also been tempered by a U.S. decision to resume sales from its tin stockpile. Long-term prospects are, however, that Thailand will continue to strengthen its position as the world's third-largest producer (behind Malaysia and Bolivia).

Tungsten is the only other metal produced in significant quantities. Rising world prices stimulated production and resulted in an increase in total output from only 1,380 metric tons in 1970 to 5,843 metric tons in 1972. Exports were valued at $16.3 million in 1972, moving tungsten up to a distant second among mineral exports. Official production and sales figures, however, are probably significantly understated, because much of the tungsten produced in the south is smuggled in fishing boats to Malaysia by dealers who buy ore from poachers. Thailand's principal legitimate customers for tungsten are in West Germany, Sweden, and the United Kingdom.

At a number of sites tungsten is mined directly, but most output is extracted as a byproduct of tin mining. Kanchanaburi and Nahkon Si Thammarat Provinces account for well over half of annual output. Valued for its hardness and strength, the mineral is used in alloy steel manufacture, in production of carbide-tipped drill bits, wear-resistant tools, and hard-faced material for cutting edges. An extremely high melting point gives it numerous military, nuclear, and space applications.

Other metals, scattered in small quantities at various areas in Thailand, currently provide little basis for mining expansion. Production of iron ore has dropped to insignificant quantities because of depletion of the small high-grade deposits. The ore is found in many areas, however, and further exploration may uncover other exploitable deposits. Antimony ore production rose sharply in 1972, but output is small and tends to fluctuate widely with price changes. Manganese ore production also increased in 1972. Battery-grade manganese ore is used domestically, and most of the higher-grade metallurgical ore is shipped to Japan. Production of both grades is still well below highs reached in 1968. Lead ore production is insignificant. No zinc production has been reported for the last 2 years, but a discovery in Mae Sod, reported to contain 3 million tons, may result in some production in the future. Three U.S. firms—Atlantic Oil, Basic Earth Science Systems, and Susa Corporation—will back Thai Zinc, Ltd., in a proposed $20 million mining and smelting project for this metal. A key feature of the project will be an Australian designed 50,000-ton-per-year smelter.

Of the nonmetallic minerals, fluorite (calcium fluoride) production has expanded most rapidly, and fluorite is Thailand's only significant contribution to world mineral production besides tin and tungsten. Output, which was negligible a decade ago, rose steadily in response to world demand to reach a high of 426,500 metric tons in 1971. Production fell to 395,070 metric tons in 1972, however, as prices for the mineral declined sharply. Exports were valued at $10 million in 1972. Thailand's principal extracting areas for this mineral are in the northern provinces of Chiang Mai, Lamphun, and Lampang, where the immediate problem for most miners is the lack of efficient transportation. The country's reserves of fluorite have yet to be estimated, but they are probably substantial because most mining is now done on surface outcroppings.

World demand for fluorite is expected to continue rising. Acid-grade ore is the chief mineral source of the chemical, fluorine, and lesser grades are needed as a flux in the smelting of steel and also have applications in glass making and aluminum refining. Second-quality metallurgical grade ore, however, is now the highest grade obtainable in Thailand because of the hand-picking method of ore dressing currently in use. A flotation plant designed to produce acid-grade ore became operational in 1972 and should help overcome problems in export quality control, which recently have led to cutbacks in orders from Japan, the principal fluorite buyer, and may also enable the industry to find new markets.

Lesser nonmetallic minerals consist of gypsum, barite, and marl. Gypsum production reached a peak of 167,905 tons in 1971 and fell off sharply in 1972 to some 89,805 metric tons. Normally, small amounts are exported to Malaysia, and the remainder is consumed

domestically. Reserves are extensive. Output of barite, which is ground into a drilling mud used in petroleum exploration, began in 1967 and increased with the start of offshore drilling for oil. Major barite deposits are in Songkhla. Marl, consumed domestically in cement production, comes from a single mine in Saraburi Province, whose output has declined steadily since 1968.

The major impediment to expansion of Thailand's mineral production is the inability to exploit reserves economically. Except for tin, most of the mineral resources are found in the northern part of the country and in the mountains that extend north-to-south along the Burma border, where the major problems are lack of access roads and/or the unavailability or irregularity of low-cost bulk transport.

The legal framework under which mining is conducted in Thailand constitutes a second impediment to expansion. National law requires that Thai citizens hold a majority interest in any mine operating north of the 11th parallel. Foreign firms are thus discouraged from investing in mining enterprises because they would lack control, and Thai partners with sufficient capital are not easily found. Another important consideration for investors, both foreign and domestic, is that main producing areas are in the far south and far north, where unsettled political/security conditions are a risk. In addition, there has generally been a lack of effective protection against illegal diggers on concessions.

4. Manufacturing and construction

Manufacturing in Thailand remains a relatively small sector, with emphasis on processing of agricultural commodities and fabrication of some consumer products and building materials. The country is trying to develop efficient medium-sized manufacturing plants, but most of its establishments are very small and many may accurately be classified as workshops rather than factories. The sector accounts for only 18% of GDP and less than 5% of employment. Bangkok is the primary industrial center, accounting for about three-quarters of the value of all manufactured goods produced. Outside Bangkok modern manufacturing, apart from agricultural processing, is practically nonexistent. Nevertheless, the sector is still one of the most rapidly expanding in the economy, and although overall growth has slackened somewhat, it is still growing more rapidly than GDP. Manufacturing output increased at an average annual rate of 9.5% from 1967 to 1972, compared with an 11.4% average annual increase from 1962 to 1967. Additions to heavy industry—for example, the establishment in the mid-1960's of a tin smelter and a number of refineries—led to increases in value added in manufacturing in the latter years, but the sector has also seen substantial growth in light industries, which have been the principal beneficiaries of investment promotion schemes.

Agriculture-related industry, particularly food processing, dominates the manufacturing sector. Food processing plants, which account for about one-fifth of value added in manufacturing, are predominately small operations using out-of-date equipment. Rice milling for local consumption and export—the nation's principal industry—is an example. Of some 40,000 rice mills in Thailand, only a small percentage are modernized. Despite a decade-long prohibition on construction of new mills yielding less than a milled equivalent of 66% from paddy, most mills are small, use antiquated equipment, and provide low yields of milled rice containing large percentages of broken grains. Most of the remainder of the food processing sector is made up of traditional production by sugar mills, tapioca mills, fruit canneries, and enterprises engaged in production of oil from coconuts, soybeans, rice bran, and cottonseed—all in various mixes of modernization and antiquity.

Both sugar and tapioca processing in Thailand are strongly tied to world demand for these commodities. A continuing world sugar deficit boosted Thailand's sugar production to 685,000 tons in 1972, more than three times the 1968 output (Figure 8). There were 33 registered factories producing sugar, all of which were working at full capacity in 1972. About 400,000 tons of refined sugar are consumed domestically in addition to substantial amounts of sugar produced mainly for home use in simple farm mills. In early 1973 the government lifted the limitation on the number of mills and expansion of existing mills in an effort to increase sugar production.

Tapioca processing is another important segment of agroindustry; it contributes significantly to exports. In 1972 exports were $74 million. About 250 pelletizing mills are located in Cholburi Province. Most are small operations, however, and the 10 largest mills account for 80% of output.

The Thai canning industry is also export-oriented, in part because the abundance of fresh food in the local market precludes large domestic sales. There are about 40 small firms canning a limited selection of fruits, vegetables, fish, and milk products. Pineapple canning is the industry's principal activity. Exports of canned pineapple products were still quite small, slightly more than $2 million in 1971, but they accounted for an appreciable share of the world

FIGURE 8. Production of selected industries (U/OU)

	1962	1968	1969	1970	1971	1972
Gunny bags (*thousand units*)	10,815	55,285	44,895	52,735	63,680	81,590
Cotton textiles (*thousand sq. yards*)	109,435	322,235	343,970	365,455	412,210	450,000
Manmade fiber textiles (*thousand sq. yards*)	...	10,615	18,230	41,835	99,790	190,000
Sugar (*metric tons*)	151,344	188,775	318,120	406,640	580,000	685,000
Cement (*metric tons*)	967,475	2,108,200	2,403,385	2,626,910	2,779,065	3,391,525
Paper (*metric tons*)	5,770	23,950	29,100	30,875	20,785	35,405
Tobacco products (*metric tons*)	10,525	13,535	14,420	15,290	16,080	16,775
Petroleum products (*thousand liters*)	...	2,883,475	3,607,115	3,880,185	5,381,155	6, 03,105
Beer (*thousand liters*)	...	35,810	30,240	36,330	32,130	33,870

... Not pertinent.

market. The seven firms canning pineapples have a combined capacity of 380,000 metric tons annually. All have experienced difficulties in obtaining pineapples in desired quantities, qualities, and sizes for canning. Thailand's opportunity for obtaining a larger share of the world market for certain canned food items appears promising. Canned curries are already a small foreign exchange earner, and future plans for export include canned mushrooms and coconut milk.

Production of vegetable oils has remained a small industry. There are over 60 small plants processing oilseed and bran, most of which are hampered by problems of irregular supply. Vegetable oil production in 1970 amounted to only 36,000 tons. Coconut oil production, concentrated in the south, leads in output, followed by peanut and soybean oil in the north and northeast and rice bran in the central region. A small oil palm project was begun in the south a few years ago, but it has not yet reached the production stage. Domestic consumption of vegetable oil is remarkably low because of the Thai preference for animal fat. Nonetheless, small amounts of vegetable oils, including coconut oil, are imported.

The relative importance of older forms of agricultural processing has declined with the development of new industries, which have accounted for most of the growth in manufacturing over the last 5 years. Thailand has very sizeable beverage and tobacco industries. There are now over 100 soft-drink bottling plants with an aggregate output of 50 million units annually. Beer output has dropped off in the last few years totaling nearly 34 million liters in 1972, or about 14% below the 1969 level. Tobacco processing is a major activity; it consists of four government-owned plants operated by the Thailand Tobacco Monopoly. Production of manufactured tobacco products, primarily cigarettes, has increased at an average rate of 4.7% annually over the past decade, reaching 16,775 tons in 1972, all of which was consumed domestically.

Small-scale and outdated facilities also inhibit growth of the wood products industry. Thailand has been comparatively slow in taking advantage of the phenomenal increase in world demand for tropical hardwoods. Of the more than 500 sawmills in country, the majority are small and use antiquated machinery. The few relatively sophisticated wood-based industries include two sizeable plywood plants (the larger of which is state-owned), four veneer mills, three chipboard plants, two fiberboard mills, and some 550 small furniture and woodworking factories. Plywood production, 24,600 tons in 1971, is at a level slightly higher than normal domestic demand; however, the general slowdown in 1971 construction activity released about 7,000 tons for export. Plywood exports still amounted to less than $1 million, while 1971 exports of logs and sawnwood totaled no more than $13 million.

The development of other consumer-oriented industries such as textile manufacturing, paper production, and vehicle assembly has been rapid in recent years and has contributed substantially toward minimizing the trade gap through import substitution. For all of these items, however, Thailand is still a large net importer. Perhaps the most successful industrial development has been in textile manufacturing, which, under heavy promotion since 1954, has developed rapidly to meet a larger share of the needs of the expanding population and is now almost adequate to meet domestic demand. The industry is highly labor-intensive and is composed mostly of small factories engaged in one or more phases of the production process such as spinning, weaving, dyeing, and finishing. Only a handful of companies—mostly those with Japanese or Chinese participation—have integrated all the steps of the production process.

The spinning phase of the textile process is heavily dependent on imported textile fibers. In 1972 there

were about 700,000 spindles, the bulk of which were located in 25 major factories. About 75% of the country's spindles use only cotton, 10% use exclusively synthetics, and 15% use polyester-cotton blends. The country is closing the gap in manmade fiber production, mainly polyester nylon, but meets less than half of its annual requirements for raw cotton from domestic production. Imports of raw cotton amounted to $34 million in 1971 and will probably remain at a high level because the production of yarn of export quality uses a larger proportion of imported cotton. The high price of cotton, on the other hand, is partly responsible for a trend toward substitution of manmade fibers. Some mills have recently begun to make blends, and those already producing blends have increased their synthetic fiber content.

The weaving sector also has a few very large producers, and it remains for the most part a cottage industry. In 1971, 4,300 weaving mills with some 25,000 looms produced 540 million square yards of fabrics of all types. In addition, there were 145 factories doing bleaching, dyeing, printing, and finishing, with an annual output of 400 million square yards, sufficient for domestic needs for this type of processing. A number of other small operations produce quilts and blankets, canvas shoes, fish nets, and twine.

The production of gunny bags from kenaf fiber has recently been a strong source of exports. Combined output from 10 factories reached 81 million bags in 1972, an increase of 28% over the previous year. Domestic use reaches about 40 million to 50 million bags annually, depending on agricultural surpluses. Exports of bags were boosted in the last 2 years as a result of problems in Bangladesh (the source of jute bags). In future years, however, Thailand is expected to face strong competition from Bangladesh and from India, both of which produce bags of higher quality than those produced in Thailand.

Thai mills produce a wide range of fabrics, although most spun yarn used in the mills is below 40 count and thus is used predominantly to manufacture coarse fabrics worn by the majority of the population. Production of cotton textiles reached 450 million square yards in 1972, compared to 109 million in 1962. Manmade fiber fabric production, begun only within the last 6 years, has grown even more rapidly, reaching 190 million square yards in 1972, but is still far less important than cotton. Despite a glut in the domestic market for certain items, the government in late 1972 lifted a ban on expansion of the industry in an effort to boost exports. The Board of Investment granted promotional privileges to newcomers and to existing firms with the stipulation that within 5 years promoted firms must export at least four times the c.i.f. value of machinery and equipment purchased from abroad.

Silk and silk products are of minor importance when compared to the textile industry as a whole. Recent improvements in quality, such as new processes for crease resistance, make silk a highly sought after item. Domestically produced raw silk, however, is in very short supply, and most silk is spun from imported yarns. Efforts to increase local production include experimentation with imported Japanese silkworm eggs, which produce cocoons yielding 3 to 4 times as much silk as indigenous varieties. In 1972 imports of silk ($2 million) actually exceeded exports ($1.5 million). Most Thai silk, however, is sold to visiting tourists.

Thailand remains a net importer of textiles and textile fabrics. Imports, mainly synthetic fibers and fabrics of types not locally produced, amounted to $66 million in 1971. Raw cotton and silk imports were another $36 million. Exports in 1971 were very small, amounting to $18 million, excluding silk and kenaf, and consisted mostly of cotton fabrics and wearing apparel, which were sold mostly to the United States. Low labor costs and an increasing proportion of modern equipment, however, put the industry in a favorable position to increase exports.

In spite of government and private efforts to develop the paper industry, Thailand remains heavily dependent on imports of paper raw materials and finished paper products. Paper manufacturing is hampered by high costs of imported pulp. Local production of short-fiber pulp from bagasse (sugarcane residue), kenaf, and bamboo is insufficient to supply the industry, and all of the 28 paper mills depend at least partially on pulp imports, which reached 60,000 tons in 1972 at a cost of $11 million. Most imported pulp originates in the United States, Taiwan, and Japan. Despite high tariffs, local products are often not competitive with paper imports.

Production of printing and writing paper and of tissue paper is nearly sufficient to meet domestic demand. The government-owned Bang Pa In mill, which daily uses 40 tons of bleached rice straw pulp mixed with 20 tons of imported chemical pulp, is the largest producer of writing and printing paper, with an annual output of 17,000 tons, or about 57% of the industry's production. Of the ten other factories providing writing and printing paper, the only two sizable ones are the Bangkok Paper Factory and the government-owned and -operated Thai Paper Factory at Kanchanaburi. There are four mills producing tissue, with a combined output of 14,000 tons annually. Two of these are joint ventures with Scott

Paper Company and Kimberly Clark, both of which mix waste paper with imported pulp in the production process.

Siam Kraft Paper Company, the only local producer of kraft paper, has an annual productive capacity of 54,000 tons; it consumes 48,000 tons of imported long-fiber pulp and 18,000 tons of bagasse pulp annually. Principal products are cement sacks, liner board, and corrugated medium. Mounting indebtedness forced the company to close down for 9 months in 1970, and at present its financial position is extremely weak.

Imports of all types of paper are expected to continue rising. Newsprint is by far the largest single import by quantity and value. Kraft paper and paperboard are also large import items. One proposal for reducing the heavy drain on foreign exchange from importing paper products is a joint Thai-Israeli pulp and paper mill, which would use pine wood from Chiang Mai in the production of 60,000 tons of newsprint annually. The mill would not be operational until 1975. A World Bank mission has also suggested establishment of pine plantations in the northeast as the basis for such a pulp industry. Possibilities for using locally available nonwood sources in pulp manufacturing are also being explored. Of the several materials being studied, kenaf seems to be the most promising.

Automobile and truck assembly was introduced into Thailand in 1961 and is now done by 10 plants, all located in the Bangkok area. Despite this relatively large number of plants, however, less than half of the 50,000 new vehicles sold in 1972 were domestically assembled. Thai automotive assemblers, led by Toyota and Mazda, perform metal finishing and painting, as well as the assembly of finished components. Engines, chassis, other major parts and accessories are imported, mainly from Japan. Domestic products used in assembly operations are tires, tubes, batteries, fuel tanks, mufflers, radiator fans, wiring, brakes, and brake linings. Auto assemblers are now required to use domestically-produced components equal to at least 25% of product value.

Supporting the domestic motor fleet, there is a fairly well-developed tire industry. In 1972, four manufacturers owned facilities with a combined capacity of about 1 million tires and 750,000 tubes. These companies (Firestone, Goodyear, Bridgestone, and Universal) used about 12,000 tons of natural rubber, or about 4% of the nation's annual rubber production, and about 2,000 tons of synthetic rubber. The four companies, however, operate well below capacity. Despite an embargo on specified types of tires, imports are still substantial.

Intermediate industries such as cement, chemical, glass, and metal production, have increased in importance but are still fairly recent additions to the manufacturing sector; and, except for cement, Thailand remains heavily dependent on imports of these items. The cement industry has made important advances over the last few years, with total capacity being increased from 2.9 million metric tons in 1971 to 4.0 million metric tons in 1972. Actual 1972 production was nearly 3.4 million metric tons.

There are now three major cement firms in the country, and output from all three is primarily portland cement (made from a mixture of limestone and marl). Siam Cement Company, Ltd., the giant of the industry with four of the nation's eight plants and annual cement capacity of 2.8 million metric tons, is now the largest industrial establishment in Thailand. It employs 5,600 workers, producing some 2,000 products, with an annual turnover of $75 million. Jalaprathan Cement Company, 30% owned by Kaiser Cement and Gypsum Company, is second largest with two plants having a combined capacity of 900,000 metric tons annually; and a third company, Siam City Cement, has a single plant with a capacity of 600,000 metric tons. A smaller firm, Universal Company, Ltd., which had been the exclusive producer of white cement for surface rendering and finishing has been hampered with surpluses since Siam Cement Company, Ltd., entered this field.

The main problem the local industry faces is overcapacity; domestic demand is currently running under 3.0 million metric tons. The export market for cement is not attractive because of the high cost of transporting cement. In addition, world market prices are far below those obtained in the domestic market. Aided by a new export tax credit scheme, however, cement producers doubled exports in 1972 to 530,000 tons, valued at $9 million. Principal buyers were South Vietnam, Indonesia, and Singapore. The tax credit scheme was very timely because the industry has been threatened with increasing surpluses as a result of the sluggishness of private construction activity. Further disposal of surpluses may not be an insurmountable problem, as Thailand's cement has an excellent reputation for quality. In 1973 Siam Cement Company, Ltd., reportedly committed 320,000 metric tons to Indonesia, although at close to production cost. Thailand also hopes to participate in anticipated aid-financed purchases for reconstruction in Indochina.

The chemical industry in Thailand has become an important part of the manufacturing sector only within the last decade. Prior to 1960, the main chemical industry was the production of ignitable

mixtures for matchheads. Thailand now produces a wide variety of gases, acids, and chemical compounds. Problems of the industry are lack of raw materials, high electrical power costs, and most important, a domestic market that is to small to justify plants of optimum scale.

The country has a number of facilities producing basic chemicals. Six plants produce carbon dioxide for use in the production of beer, dry ice, and carbonated drinks. There are several facilities producing oxygen, acetylene, ammonia, and nitrous oxide. Nitrogen is produced as a byproduct in some chemical processes, but local capacity is much greater than demand and no export market has been found. Chlorine, a byproduct of caustic soda, is also produced in quantities far exceeding local requirements. Caustic soda production amounted to about 40,000 tons in 1972, or about two-thirds of capacity. It is used in the production of silicates and textiles, and in the recovery of lubricating oil. Similar supply-demand situations exist with respect to the production of sulfuric and hydrochloric acids.

Construction is now underway in Cholburi on Thailand's first petrochemical facilities to produce basic materials for use in the manufacture of plastics, paints, detergents, fibers, and other industrial products. The first stage of production, which will convert naphtha into petrochemical intermediates, will employ a cracker with a capacity of 150,000 tons of ethylene annually, more than adequate for domestic requirements. The second stage of production will turn out polyethylene and other basic petrochemicals. Foreign investment is critical in both stages. Thai Oil and Refinery Company, Ltd. (TORC) and Royal Dutch Shell will jointly own the first stage facilities, while Mitsui-Mitsubishi will own those of the second stage. Completion of the project is now scheduled for 1977; total construction cost is estimated at $300 million. In the interim, as part of the agreement, Mitsui has been granted monopoly rights on petrochemical imports from Japan. The project is viewed with skepticism by some who claim that a high level of tariff protection will be required to make it profitable. In any case, the project is likely to generate a whole new complex of industries. A number of companies have already shown interest in establishing processing facilities for other petrochemical derivatives.

There are a few plants in Thailand producing plastic intermediates from imported chemicals. Polyvinyl acetate, a basic compound of emulsion paints and adhesives, is produced by local branches of two multinational firms. Polyvinyl chloride, basic to the production of a wide variety of plastics, including flexible pipe, cable sheathing, floor tiles, hose, bottles, and upholstery, is manufactured domestically using imported vinyl chloride monomer, which will be produced locally when the petrochemical project comes on stream. There are also three producers of acrylic plastics, which are used in the manufacture of furniture and fixtures.

Smaller plastic articles are produced in scattered small plants, but in a less developed country such as Thailand, it is usually difficult to secure accurate statistics on the numbers of related firms or their output. Nevertheless, it is clear that there are numerous factories turning basic materials into plastic artifacts. At least 500 plants, each employing no fewer than 4,000 people, are known to produce such items as packaging bags, moulded toys, containers, trays, cord and tape, pipe and hose, and insulated wire and cable.

Thailand has only one major fertilizer plant, the Chemical Fertilizer Company, Ltd. (CHEMFERCO) at Mae Mo in Lampang. Using local lignite deposits and imported sulfur as raw materials, the factory has a rated annual capacity of 60,000 tons of ammonium sulfate and 30,000 tons of urea. Operating costs with lignite are excessive, however, and despite high tariff protection, the plant has consistently operated at a loss since beginning operations in 1966. In October 1972 the Board of Investment approved a joint venture between CHEMFERCO and Japanese interests which, although still in the planning stages, could eventually produce 320,000 tons of mixed fertilizer annually using imported and locally available materials at a ratio of five to one. The country's only other fertilizer production is done in plants in Bangkok, which convert municipal garbage to low-nutrient compost. Pesticides are not produced locally, but there are three operations which blend imported chemicals into various formulations for use with different crops.

Among the metals industries, the one in which most progress has been made is steel, but even in steel production Thailand has far from a modern, completely integrated facility because of the absence of significant quantities of ore or coking coal. The steel industry has expanded rapidly in the last 5 years under encouragement of the Board of Investment, but Thailand still imported 800,000 tons of steel products in 1972. At the end of 1972 there were 11 steel plants with an installed capacity of 550,000 tons annually. Bars, reinforcing or wire rods, and light sections account for 70% of capacity. The remainder is primarily castings. Most steel plate products are imported, as local output of these falls far short of

demand. There are numerous auxiliary industries, usually small, processing iron or steel into final products; many of them specialize in such items as pipes, nails, galvanized sheets, and small parts. The industry's raw materials are for the most part imported, and include scrap iron, fire bricks for furnace linings, electrodes, and ferroalloys. Lopburi Province is the only place where iron deposits are being worked; they supply three blast furnaces operated by Siam Iron and Steel Company (SISCO), which together produce 15,000 tons of pig iron annually. This facility, to be expanded with a new $21 million loan from the International Finance Corporation, has also earned the distinction of being the first to export castings.

The steel industry's future over the next decade looks promising from Thailand's Board of Investment plans for its expansion. Despite prevailing high costs and some buildup of stocks, the Board of Investment invited applications in mid-1973 for promotional certificates on three new steel projects that would greatly increase the country's import requirements for scrap iron. The projects are to be independent factories: one to produce 700,000 tons of hot-rolled coil annually; another to produce not less than 500,000 tons annually of cold-rolled sheet from hot-rolled coil; and a third to produce not less than 1 million tons of steel plate. A Thai-Japanese joint venture has been proposed whereby, G.S. Steel, the country's largest wire rod and round steel bar manufacturer, would hold a 55% share in the projects and 45% would be held by four Japanese steel makers, Kawasaki, Nippon, Mitsubishi, and Mitsui. The proposal calls for completion of all three projects within 7 years.

In nonferrous metals, little has been accomplished outside the tin industry. Thailand completed construction of its first electrolytic tin plant in 1973 with a capacity of 65,000 tons. Despite its being the world's third-largest supplier of tin, Thailand had been importing about 45,000 tons of tin plate annually for the canning industry at a cost of $15 million.

Thailand is more than self-sufficient in certain categories of glass products, including average-quality sheet glass, however, construction companies continue to import more specialized and higher-quality types. Among the three major glass producers, Thai Asahi Glass Company, Ltd., is the sole producer of sheet glass, with a capacity of 67,500 tons annually. Exports of glass in 1972 amounted to about 30% of total sales—a result of large Japanese orders. Domestic demand is from construction firms, brewers, bottlers, cosmetic manufacturers, and pharmaceutical packagers. The future of the glass industry seems promising, as a growing market makes it increasingly profitable to produce more sophisticated products. Except for soda ash, raw materials for glass production such as sand, limestone, and dolomite are available locally.

The construction sector in Thailand is small, contributing about 4.8% of GDP and employing only about 1% of the labor force in 1972. Unskilled, low-paid workers predominate; the average wage of an unskilled worker is equivalent to about 10 U.S. cents an hour. The construction boom of the 1960's, however, certainly increased the level of skills throughout the industry. Sheet-metal workers, welders, and heavy-equipment operators are among the highest paid workers, averaging about 35 cents per hour. Skilled electricians, painters, plumbers, bricklayers, and carpenters can also be found with little difficulty. Thai contractors have been able to provide an increasing part of the light engineering and architectural skills needed in private and public construction activity. Most materials, particularly for residential construction, such as cement, precast concrete, sheet glass, brick and tile products, timber, plywood, particle board, asphalt, reinforcing steel, and pipe are locally available. Imported materials, mainly heavy machinery, electrical equipment, sanitary porcelain, appliances, steel sections, and plastics, are readily available through local wholesalers.

The construction sector has performed poorly in the last 5 years because of reductions in U.S. military construction activity, a leveling off of public investment in power, transport, and irrigation facilities, and most importantly, a decline in private investment. For the 1967-72 period, as a whole, the industry did not grow at all, compared to an average annual increase of 15.2% during 1962-67. In the coming years, funds will probably again be funneled into construction as private investment recovers, although a return to rates of growth such as those experienced during the commercial boom of the early 1960's is not anticipated. Certain types of construction in Bangkok proper, such as hotel construction, may have reached their peak. On the other hand, several large public works projects are planned for the next 5 years, including a water-supply project, a new sewage system, expansion of port facilities, and a road system circling the metropolitan area. There is also a critical need for urban housing in the Bangkok area.

5. Domestic trade

Wholesale and retail trade, the third-ranking economic sector, provided employment for about 8% of the labor force and accounted for nearly 17% of GDP in 1972. The focal point of the trade network is Bangkok, which receives agricultural products and raw materials from the provinces and distributes manufactures to them. Except for trade between Bangkok and the provinces and traffic in draft animals and salt, there is little interregional trade because of the widespread local availability of staples, such as rice, vegetables, and construction materials.

Large wholesale firms, most of which import and export general merchandise, are concentrated in Bangkok and maintain provincial depots. Wholesalers established in the provinces deal primarily in agricultural goods for shipment to Bangkok and are important sources of agricultural credit, which is advanced against the assurance of delivery of produce to the creditors.

Retail trade is frequently combined with wholesale activity. Almost all retail outlets, both in Bangkok and the provinces, are small and specialized. In the provinces, the principal retail outlets are small shops, local food markets, and peddlers.

Chinese merchants, operating small family-owned retail firms, dominate Thai commerce. Although the government has retained a few restrictions to curb Chinese ownership in some sectors of the economy, the assimilation of the large Chinese minority has been relatively thorough, and there is little overt hostility between Thais and Chinese.

C. Economic policy and finance

1. Government policy (U/OU)

The overriding concerns of Thai public policy are the improvement of the nation's living standard and the development of a sound basis for continued growth. Direct government participation in the economy is relatively limited. The government's share of GDP has been between 15% and 20% in recent years, a portion slightly below that of other Asian countries. Apart from planning public expenditures for enlargement of the country's infrastructure, the government influences the pace and course of economic growth principally by maintaining a stable environment relatively free of direct controls and largely favoring the private sector, which typically accounts for more than two-thirds of total investment annually.

Although general policy is to limit its direct economic participation, the government does, however, own or control key segments of the Thai economy, including the postal service, telephone, telegraph, radio, and television communication, railroads, ports, and airlines. Mineral exploitation, extraction of forest products, water supply, electric power, passenger transport, and insurance are controlled either by direct participation or by special arrangements. The government also participates in the manufacturing sector, with state monopolies operating in the manufacture of cigarettes, alcoholic beverages, matches, and playing cards. Government plants produce cement, paper, gunny bags, fertilizer, leather goods, prepared foods, and a variety of other items, but most of these are small operations. Manufacturing is still essentially a private activity. Government enterprises account for only about 6% of the sector's contribution to GDP. Government policy to refrain from creating additional enterprises in competition with private business is reaffirmed in Thailand's most recent national economic plan, which also specifically states that consideration would be given to private participation in state enterprises.

Since 1961, national economic plans have provided general guidance for Thai government policy. Such plans provide various agencies of the government with a broader scope for decisionmaking than is possible through the normal single-year budgetary program and allow for better project preparation, which is important in attracting foreign financing. Nevertheless, detailed planning remains feasible only on an annual basis, and plans must be reviewed each year because of changing conditions. The initial effort to coordinate development objectives—the First National Economic and Social Development Plan (1961-66)—actually represented little more than a broad multiyear program of public development expenditures. Production targets were established for the various industrial sectors, but specific policy proposals for reaching the goals were lacking. Targets for key sectors either were achieved or exceeded, largely because of unexpectedly rapid increases in private investment. Real growth averaged 7.5% annually during the First Plan period, far above the rate projected.

Most of the targets of the Second Plan (1967-71) were reasonably well achieved; however, real GDP growth rate was 6.6% annually instead of the projected 8.5%. During the plan period, continuous revisions occurred, and total expenditures for development were about 28% above the original plan targets. The major portions of development spending

went to investment in public works (32%), education (25%), and agriculture and irrigation (14%). A far greater share of the plan was financed from domestic sources than originally anticipated, partly the result of a better than expected performance of state enterprises. Foreign financing of this plan accounted for only 14% of total expenditures, compared with the 30% originally estimated.

The Third National Economic and Social Development Plan (1972-76) projects an average real growth rate of 7% per annum, with lower growth rates than the Second Plan in all sectors except agriculture. Anticipated slowing of the population growth rate from the present 3.2% to 2.5% annually would, nonetheless, raise real per capita income by 4.5% annually. In the Third Plan the priorities have been altered somewhat, with education getting the largest increase in development funds, agriculture and irrigation getting the same share, and physical infrastructure declining. Education is allocated 33%, physical infrastructure 27%, social, urban, and rural development 18%, and agriculture and irrigation 14%. Because there is concern that the balance of payments could restrict future growth, development strategy is directed at increasing exports, at a rate of 8% annually, and fiscal and monetary measures are contemplated to check import expansion. The Third Plan calls for total expenditures of 100 billion baht, of which about 17% would be financed from foreign loans and grants.

Within the broad frame of development planning, but often functionally separate from it, the government sets specific policies for individual sectors or activities. Agricultural policy has emphasized the construction of irrigation projects as a means of increasing production and continuing the trend toward the diversification of farming. The construction of secondary canals, however, has lagged far behind impoundment construction, thereby limiting the utility of the existing irrigation systems. Third Plan strategy is to concentrate on expansion of secondary canals, as the most ambitious physical target of the entire plan is a 48% expansion of irrigated area by 1976. The state's highway construction program has made commercial farming feasible in new areas and has contributed greatly to the success of diversified farming. To further this objective, the Third Plan also places great emphasis on construction of provincial roads rather than national highways.

Day-to-day government participation in agriculture is modest. Except in the case of tobacco, there is no direct government regulation of crop production. The government offers no direct crop subsidies, but does maintain price supports for rice, corn, cotton, and kenaf. The level of guaranteed prices has been raised so that substantial incentives are offered to farmers. The government also sponsors small programs which distribute fertilizer to farm cooperatives at concessional prices, and farm credit is being expanded through government-guaranteed commercial bank loans and financial strengthening of the Bank for Agriculture and Agricultural Cooperation.

The government's role in foreign trade regulation is relatively minor. Most products may be imported without license; however, goods which the government considers unduly competitive with domestic products are subject to licensing. For example, import licenses are normally denied for sugar, tin, teak, and certain silk goods. In general, goods may also be exported freely after the issuance of a "certificate of exportation," which assures repatriation of proceeds and the payment of any applicable duties or premiums. At times the government has resorted to quotas or all out bans on exports of rice to insure adequate domestic supplies. Exchange transactions, including private borrowing abroad, are virtually unrestricted. The major control over the exchange system is the requirement that all foreign exchange transactions take place through an authorized agent of the Bank of Thailand. Approval of outgoing payments for currency transactions is essentially automatic, however, subject to import-licensing provisions.

Encouragement of foreign investment has long been a principal tenet of government policy. Under laws for the promotion of industrial investment, selected industries, primarily import-substitute and export industries, investment incentives are offered, which may include business and income tax concessions, import duty exemptions, unrestricted repatriation of earnings and capital, consideration of tariff protection or restriction of competing imports, and the exemption of export duties on commodities produced for export. All promoted ventures are guaranteed freedom from nationalization and from competition with government-owned enterprises. While the government's industrial promotion program has succeeded in attracting investment funds, it should be noted that the largest part of domestic investment, as well as a substantial amount of foreign investment, is channeled into nonpromoted projects.

A recently enacted Alien Business Law and Alien Occupation Law, designed primarily to enhance local Thai participation in investment activities, may have a significant negative impact on potential investments. These laws outline three categories of business and place various restrictions on each. Category A

enumerates 39 types of businesses and professions that are reserved exclusively for Thai citizens, including civil engineers, lawyers, accountants, architects, brokers, and clerks and secretaries. Foreigners currently owning or managing businesses in Category A would have 2 years in which to assume a minority position. New foreign enterprises would be prohibited in Category B, which includes cement manufacturing, a number of agricultural processing industries, retail shops, and hotels. Existing foreign businesses in Category B could continue to operate, but except for exporters, would be limited to a 30% annual growth rate calculated arithmetically. Businesses in Category C such as exporting, wholesaling, textile manufacturing, and mining would be open to new foreign ownership but would also be subject to the 30% annual growth ceiling. These new laws do not apply to businesses in promoted industry status. A foreign company which elects to operate under the preferential treatment provided by trade agreements concluded by its parent country with Thailand, is neither subject to the terms of the laws nor protected in the future by their terms, when such treaties are revised. As written, the laws are open to wide and conflicting interpretations and will have to be officially clarified before the impact on foreign investment can be determined.

There are few other explicit restrictions on foreign private investment, but various obstacles inhibit it. In the past, resident permits have been extremely difficult to obtain. The purpose of this restrictive practice is also to maximize Thai participation in industrial ventures. Alien businesses are generally prohibited from owning land. Promoted industries in which aliens own a majority interest are technically permitted to own land on a case by case basis, but in practice current policy resists such ownership.

2. National budget (C)

Thailand's budgets of recent years reflect a considerable expansion of government activities, with public expenditures increasing from 17.7 billion baht[2] in FY1967 to 30.0 billion baht in FY1972 (Figure 9). This expansion, an average 11.2% increase annually, substantially exceeded the growth in national income over the period. The sharp rise in expenditures was largely the result of increasing demands on government for security and development programs. Receipts, however, did not keep pace with expenditures (Figure 10). As a result, the fiscal position of the Thai government deteriorated steadily. Cash deficits increased from 1.1 billion baht in FY1967 to nearly 7.7 billion baht in FY1972, accompanied by marked increases in expansionary financing from domestic sources (Figure 11).

Over the past decade the most pressing budgetary decisions have concerned the relative priorities of security and development. Since 1968, security expenditures have grown at a faster rate, thus reversing a trend of earlier years. Expenditures for defense and police, which accounted for only 18.6% of total expenditures in FY1968, amounted to 23.4% of the total in FY1972. While experiencing an absolute increase, the share of capital expenditures in the budget declined from 27.8% in FY1968 to 26.5% in FY1972. Debt servicing has also cut into funds available for development purposes in recent years. In FY1968 debt service claimed only 4.7% of the budget, compared to 7.5% in FY1972.

The most significant development in capital budgeting in recent years has been the leveling off of the rate growth in expenditures for transport, communications, and power, although these sectors still claimed a substantial proportion (34.6%) of total capital expenditures in FY1972. From FY1967 to FY1972 the most rapid growth in capital expenditures was in education and health, while allocations to agriculture were small and erratic.

Revenues over the FY1967-72 period increased at an average rate of 6.5% annually, well below the growth rate of expenditures. Tax revenue as a proportion of total receipts remained about the same (90%) over the period, but notable changes took place in the relative importance of different tax categories. Taxes on consumption increased from about 36% of total taxes in FY1967 to about 41% in FY1972, reflecting a substantial growth in excise taxes, primarily on petroleum products, beverages, and tobacco. While the role of foreign trade in generating revenue is consistently understated by Thai tax data—essentially because exporters and importers are also required to pay domestic business taxes—this source has nevertheless been declining. Taxes on international trade over the 1967-72 period fell from a record 41% to 33% of tax revenue. This reflects both a sharp decline in export duties and slow (6.6% per year) growth in import duties. The increasing importance of consumption taxes compared with taxes on trade is also in part explained by the rapid development in the domestic refining of petroleum. The share of direct taxes increased from 11.3% in FY1967 to 13.6% in FY1972, resulting almost entirely from the increased taxes on personal incomes. The share of corporate income taxes changed little over the period.

[2]The exchange rate for all baht values in this chapter is 20 baht = US$1.00.

FIGURE 9. Central government expenditures and growth rates (C)

	BILLIONS OF BAHT*						FY1967-72 AVERAGE ANNUAL INCREASE (PERCENT)
	FY1967	FY1968	FY1969	FY1970	FY1971	FY1972 (estimated)	
Total expenditure	17,653	20,848	23,162	24,912	28,348	30,016	11.2
Current expenditure	12,164	13,850	15,706	16,734	18,526	20,664	17.1
Defense and police	3,477	3,871	4,631	5,530	6,369	7,031	17.3
General administration	3,082	3,448	3,872	3,394	3,584	3,584	3.0
Economic services	1,535	1,720	1,778	1,963	2,069	2,054	5.9
Agriculture	666	784	874	1,007	1,051	1,011	10.1
Industry and mining	214	72	76	74	76	70	-18.1
Transportation	506	629	706	736	708	822	10.2
Communication							
Power							
Other	153	235	122	146	144	142	-1.7
Social services	3,266	3,487	4,010	4,145	4,358	5,577	11.2
Education	2,054	2,452	2,734	2,972	3,099	4,175	15.2
Health	510	612	651	680	697	824	10.0
Other	702	423	625	513	562	578	3.8
Interest payments	847	980	1,118	1,372	1,790	2,228	29.0
Internal	772	880	979	1,193	1,590	2,004	21.0
External	75	109	139	179	200	234	25.0
Unallocable	253	315	297	330	350	180	6.6
Capital expenditure	4,467	5,800	6,159	6,468	7,904	7,953	12.2
Agriculture	1,010	1,426	1,274	1,623	1,888	1,430	7.0
Industry and mining	24	53	72	24	15	13	-11.6
Transportation	1,806	2,322	2,647	2,574	2,685	2,749	8.7
Communication							
Power							
Education	511	896	1,036	950	1,793	1,646	26.0
Health	102	106	132	95	170	208	21.0
Water supply and sewage	158	130	108	207	302	332	15.8
Miscellaneous	738	732	732	733	817	1,225	10.6
Unallocable	112	135	93	264	234	290	29.0
Transfers	1,166	1,271	1,200	1,720	1,918	1,399	3.8
To local governments	433	453	482	593	839	583	6.1
To state enterprises	712	818	817	1,127	1,079	816	2.7
Others	21	0	0	0	0	0	.....
Adjustment for double counting	-144	-52	-2	-10	2	0	.....

*20 baht = US$1.00.

Budget expenditures for FY1973 are estimated at about 32 billion baht ($153.8 million), an increase of 6.6% over the previous year, some of which will be spent on increased benefits to government employees. Detailed expenditure estimates by functional category are not yet available for FY1973, but the budget projection (including a 400 million baht supplemental for defense) indicates that the share allocated for security purposes will again rise at the cost of development spending. The government has opted to postpone some roadbuilding and irrigation projects in order to increase financing for agricultural production and diversification. Fisheries, livestock, and forestry will receive significantly larger portions of the FY1973 budget, with some funds going to support an accelerated land title program. Increased amounts have also been earmarked for trade missions and greater participation in overseas trade fairs in an effort to boost exports.

The government's fiscal position is expected to show a slight improvement in FY1973. Tax revenues are projected to increase some 10% as a result of reimposition of a 1.5% business tax on imported commodities, higher corporation tax rates, and

FIGURE 10. Central government revenues and growth rates (C)

	MILLIONS OF BAHT*							FY1967–72 AVERAGE ANNUAL INCREASE (PERCENT)
	FY1967	FY1968	FY1969	FY1970	FY1971	FY1972 (estimate)	FY1973 (estimate)	
Total revenue	14,545	16,285	18,150	18,721	19,097	20,849	23,017	7.4
Tax revenue	13,302	14,863	16,625	16,968	17,274	18,830	**20,805	7.1
Taxes on income	1,504	1,726	1,973	2,169	2,363	2,550	2,780	11.1
Personal	825	973	1,122	1,272	1,407	1,550	1,740	13.4
Corporate	679	753	851	897	956	1,000	1,040	8.0
Taxes on consumption	4,822	5,321	5,990	6,481	7,330	7,780	8,647	10.0
Business taxes	2,809	3,068	3,345	3,577	3,927	4,200	4,310	7.0
Excise taxes	1,704	2,064	2,436	2,686	3,192	3,359	4,092	13.8
Beverages	506	544	617	647	716	808	1,315	9.8
Petroleum products	632	787	1,000	1,086	1,399	1,400	1,560	17.2
Tobacco	600	670	749	896	1,003	1,073	1,134	12.3
Others	56	63	70	77	74	78	83	6.5
Other	159	189	209	218	220	230	245	7.8
Taxes on international trade	5,486	6,183	6,980	6,440	5,616	6,234	6,332	2.5
Import duties	4,230	4,811	5,305	5,393	5,185	5,849	5,882	6.6
Petroleum	395	550	514	544	275	277	190	−6.9
Foodstuffs	330	344	369	380	399	423	460	5.0
Machinery, equipment and vehicles	1,321	1,548	1,676	1,614	1,618	1,730	1,930	5.5
Of which: passenger cars	(248)	(378)	(388)	(326)	(204)	*na*	*na*	
Textiles, yarns, thread	553	592	625	634	454	550	500	−0.2
Other	1,631	1,777	2,121	2,221	2,439	2,869	2,742	11.9
Export taxes	1,256	1,372	1,675	1,047	431	385	450	−23.0
Rice premium	920	1,116	1,236	654	262	***185	***240	−28.0
Other	327	256	439	393	169	200	210	−9.4
Other taxes	1,490	1,633	1,682	1,878	1,956	2,257	2,546	8.6
Non-tax revenue	1,243	1,422	1,525	1,753	1,823	2,019	2,212	10.1
Contribution of Bank of Thailand	245	282	297	300	450	435	450	12.1
Contribution of state enterprises	221	275	336	313	338	386	410	11.9
Other non-tax revenue	777	865	892	1,140	1,035	1,198	1,352	9.0

na Data not available.

*20 baht = US$1.00.

**Includes additional revenue from new tax measures estimated at about B500 million. Therefore, figures do not add up to the total.

***These estimates do not include the additional revenue from the restoration of the rice premium, which took place in September 1972.

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FIGURE 11. Central government financing and growth rates (C)

	MILLIONS OF BAHT*							FY1967-72 AVERAGE ANNUAL INCREASE (PERCENT)
	FY1967	FY1968	FY1969	FY1970	FY1971	FY1972	FY1973	
Total expenditures	17,653	20,848	23,162	24,912	28,348	30,420	32,003	*11.4*
Total receipts	16,535	17,950	20,291	20,683	21,719	22,715	25,102	*6.5*
Tax revenue	12,302	14,863	16,625	16,969	17,274	**19,292	***20,805	*7.7*
Non-tax revenue	1,243	1,422	1,525	1,753	1,824	**2,068	2,212	*10.6*
Extra-budgetary receipts	978	388	573	817	1,570	665	1,116	*-7.5*
Foreign grant receipts	1,012	1,277	1,568	1,144	1,051	690	1,029	*7.4*
Cash deficit	1,118	2,898	2,871	4,229	6,629	7,705	6,851	*47.0*
Financed by:								
Net external borrowing	56	198	-43	34	91	77	358	*6.5*
Non-expansionary domestic sources	956	782	569	515	756	1,592	1,605	*10.7*
Government savings bank	(1,108)	(611)	(496)	(435)	(766)	(1,454)	(1,625)	*(6.5)*
Non-bank public	(-152)	(171)	(73)	(80)	(-10)	(138)	(-20)	*(1.5)*
Expansionary domestic sources	106	1,918	2,345	3,680	5,782	6,036	4,838	*190.0*
Banking system†	350	1,077	3,535	3,576	4,478	5,601	4,613	*75.0*
Counterpart funds	-71	-63	-118	-121	65	13	0	*0.0*
Coin issues	54	101	61	55	138	17	133	*-20.0*
Net use of cash balances	-226	803	-1,133	170	1,101	405	92	*Negl.*

*20 baht = US$1.00.

**Unexplained discrepancy with Figure 10.

***Includes 500 million bahts of additional revenue expected from new tax measures.

†Bank of Thailand, commercial banks, exchange equalization fund, and foreign exchange loans from Bank of Thailand to central government.

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improved collection procedures. The budget deficit is projected at about 7 billion baht—roughly 10% lower than the previous year—to be financed largely from domestic borrowings.

3. National monetary and banking system (U/OU)

a. Currency

The basic unit of Thai currency is the baht, divided into 100 satang. In October 1963, following a period of currency stability in which the international value of the baht was permitted to seek its own level in foreign exchange markets, the government established a par value of B20.80 per US$1.00 with the International Monetary Fund (IMF). Authorities of an Exchange Equalization Fund (EEF) intervene in the foreign exchange market when necessary to maintain effective rates within the margin permitted by the IMF. The EEF limits its buying and selling operation to dollars.

By law, the Bank of Thailand is required to maintain a 60% reserve behind the baht notes issued to be held in gold, foreign currency, and foreign securities redeemable in 1 year from the date of purchase. Since 1961 the Bank's holdings of gold and foreign exchange have been sufficient to provide 100% coverage of the note issue.

b. The banking system

The Thai banking system consists of the government-controlled central bank, private commercial banks, and a number of specialized financial institutions. The Bank of Thailand, established as an independent entity in 1942, is the country's central bank. It is functionally divided into the Issue Department, which issues currency notes and manages the currency reserve; and the Banking Department, which manages the public debt, acts as the government's agent for exchange control, and is the depository for the EEF. The Banking Department also operates a clearinghouse and functions as a bank of reserve for the commercial banks and a rediscounter of their bills.

The Commercial Banking Act of 1962 vested the Bank of Thailand with some regulatory power over the money supply, including the authority to establish reserve requirements for commercial banks, rediscount short-term commercial paper, and engage in open-market operations. The Bank also has additional powers to stipulate the maximum amount that any bank may lend to one borrower and to prescribe legal limits on interest rates for any lender (a rule ignored more often than respected). Under the 1962 act, foreign banks operating in Thailand are also required to hold a minimum amount of assets in the form of deposits with the Bank of Thailand.

The principal credit operation of the Bank of Thailand is rediscounting, or purchasing promissory notes held by commercial banks against the private sector. Transactions of this type rose by an average 32% annually from 1967 to 1972, when these loan funds totaled B923 million. Most rediscounts carry a preferential rate and are for short-term transactions, with a maximum period of 2 to 12 months. Rediscounting facilities for manufacturing cover only operating expenses of certain industries. Since July 1971, however, rediscounting has been extended to cover promissory notes of the Industrial Finance Corporation of Thailand (IFCT). In an effort to aid farmers, the central bank's rediscounting facility has also been extended to include bills arising from agricultural production.

The Bank has not always been able to use its powers extensively or effectively. Its ability to regulate the expansion of commercial credit has been limited by the commercial bank practice of maintaining reserves in excess of legal requirements, leaving little need to borrow from the Bank; this has limited the effectiveness of changes in the Bank's discount rate as a tool for controlling credit expansion. The Thai exchange control system permits commercial banks to use short-term facilities abroad freely, although utilization of borrowed funds internally is limited to the scope allowed under the capital-risk asset ratio. As an indicator of the traditionally low reliance of commercial banks on the Bank of Thailand, the outstanding amount of credit from the Bank amounted to only 2.1% of total commercial bank liabilities at the end of 1972.

Commercial banks form the nucleus of the money market in Thailand and are the most significant financial establishments for generating savings and supplying investment funds. At the end of 1972, there were 29 commercial banks—16 domestic and 13 foreign—operating over 600 bank offices located throughout the 72 provinces. Their facilities are, however, concentrated in the Bangkok-Thonburi area. Total commercial bank deposits reached 48 billion baht in 1972; time and savings deposits comprised 78% of the total, while demand deposits and other deposits accounted for 21% and 1%, respectively. Loans and overdrafts extended by the banks were valued at 26 billion baht in 1972, and discounts totaled 8.8 billion baht. The largest portion of direct bank credit was extended to domestic wholesale and

retail trade. Credit to finance foreign trade, manufacturing, personal consumption, services, construction, real estate, financial businesses, and agriculture accounted for the next largest portions, in that order.

The recent period has witnessed spectacular growth in commercial banking. The number of bank offices has increased over 70% since 1960. Total deposits increased at an average annual rate of 18% between 1967 and 1972. Loans and overdrafts by commercial banks increased an average of 15% annually over the last 5 years, while credit from discounted notes expanded by 16% annually. Aside from increases in the money supply, a prime factor in this rapid growth has been the increasing willingness of the Thai people to take advantage of expanded banking services.

Important changes have taken place over the last 5 years in the pattern of commercial bank credit to Thai business. The proportion of outstanding loans and overdrafts for foreign trade declined significantly from 1967 to 1972. An important causal factor in this relative decline was the increased role of the Bank of Thailand in holding trade bills. This development facilitated an increase in commercial bank credit for such other activities as supporting domestic trade and production. With the notable exception of a decline in agricultural accounts, the share of domestic sectors in loans and overdrafts either remained the same or increased marginally.

In addition to the Central Bank and the network of commercial banks, Thailand has three specialized financial institutions, the oldest and largest of these being the Government Savings Bank. The chief institution for rural savings, the Government Savings Bank, has played an important role in channeling funds into development programs through the purchase and sale of government bonds. It accepts savings deposits, issues savings bonds, and deals in government bonds. This bank has a network of over 100 branches and is the main subscriber to government long-term bonds. At the end of 1972, deposits totaled 65 billion baht, compared with 3.4 billion baht at the end of 1967. Investment in government securities comprised 90% of its assets at the end of 1972.

Another specialized institution, the Industrial Finance Corporation of Thailand (IFCT), was established under government sponsorship in 1959 to provide long-term credits in both foreign and local currency for the establishment, expansion, or modernization of small- or medium-size private industries—especially those using local raw materials and promoting local employment. The Corporation is empowered to provide financing in any form considered appropriate to its clients and its own interest. As a general rule, its aim is to diversify its financing among different types of industry with as broad a geographical basis as possible. It encourages the promotion of private industry by offering entrepreneurs more attractive financing than is generally obtainable from other institutions. It is privately owned; commercial banks have a 75% share holding, and the remainder is held by investment companies, insurance firms, private companies, and individuals. It has received low-interest loans from the budget and has sold debentures to the Bank of Thailand, the Government Savings Bank, and commercial banks. For foreign currency lending, the IFCT has been utilizing existing credit lines from the Asian Development Bank and Japan.

The Bank of Thailand has agreed to rediscount IFCT promissory notes that arise from its lending to high priority projects, a move which will enable the Corporation to expand its volume of lending and thus play an even larger role in the future. The IFCT has greatly expanded its lending role over the last 5 years—loans to the private sector at the end of 1972 amounted to 585 million baht, more than double their 1967 level. Nonetheless, its resources are far from adequate to meet the needs of industry, and it remains general practice for industrial undertakings to obtain plant and equipment on supplier credits from abroad and borrow from commercial banks for working capital.

The Bank for Agriculture and Agricultural Cooperatives (BAAC) was established in 1966 to relieve the great dearth of institutionally-financed capital in the agricultural sector. The bank's 55 branches extend unsecured production loans of up to 5,000 baht at subsidized interest rates (to cooperatives at 9% and to individual farmers at 12%), especially to those producing primarily for sale rather than subsistence. It also lends against mortgages, government bonds, or deposits up to 60% of the value of such collateral. Short-term loans repayable in 1 year and medium-term loans repayable within 3 years, are extended for the financing of land clearance, land development, irrigation, and the purchase of agricultural equipment. In addition, the BAAC has been permitted to discount promissory notes on a regular basis since May 1972. The bank has been highly successful. Loans and overdrafts to the private sector increased from 381 million baht at the end of 1967 to 1.8 billion baht at the end of 1972. Limited working capital, however, has not allowed it to meet all requirements.

Notwithstanding the relatively well-developed institutional framework for all types of credit financing, many Thais depend on an assortment of relatives, shopkeepers, crop buyers, landlords, and professional moneylenders as their primary source of funds. This unorganized market is not subject to real regulation, supervision, or control. Most transactions are in cash and repayment periods are short. Although loans from relatives are sometimes interest-free, rates are most often higher than those charged by institutional lenders. Monopoly elements do exist and abuses are not infrequent in some of these other forms of credit; but in general, borrowers have access to more than one lender, and the higher rates reflect lack of collateral and higher risks of default. Given a limited supply and a very large need for funds—frequently for nonproductive purposes—the unorganized market does its job reasonably well, at prices which appear consonant with prevailing conditions.

The unorganized money market is particularly important as a source of agricultural credit, since relatively few farmers are reached by lending institutions. It is estimated, for example, that commercial banks and the Bank for Agriculture and Agricultural Cooperatives together account for only about 10% of all farm credit. Shopkeepers and relatives are by far the most important sources of farm credit throughout the country, although crop buyers and landlords do play a significant role in the central plain, where average debt per family is several times higher than in any other region.

c. *Money supply and prices*

After experiencing a long period of monetary stability, Thailand's economy has faced expansionary pressure from a rapidly growing money supply during the early 1970's. In the 1960's the achievement of monetary stability in the face of sustained large increases in exchange reserves was due to a high rate of private saving and the slow growth of net government borrowing from the banking system as a whole. Money supply grew at an average annual rate of 6.2% from 1962-69, which compared favorably with real growth in GDP of 7% annually over the same period. From 1969 through 1972, however, money supply grew at an average annual rate of 11.2%, compared to a slower annual growth in GDP of 5.9%. Since net foreign assets declined from 1969 to 1971, the initial monetary expansion was mainly the result of internal factors, particularly government finance. The central government has become a major expansionary factor since 1969, as current surpluses have declined steadily and the government has had to increase its borrowing from the Bank of Thailand to finance growing cash deficits. External factors were also expansionary in 1972, however. Because of a marked rise in export earnings as well as a revaluation of assets, reserves increased by $200 million. At the end of 1972 the money supply stood at 24.7 billion baht, or nearly double the 1965 level. Characteristic of a developing country, demand deposits continued to make up an increasing share of the money supply, rising to 39% in 1972 from 37% in 1965.

Until 1972 prices did not rise significantly in Thailand because the greater increments in the money stock were still largely absorbed by substantial increases in production and growing monetization of the economy. Foreign exchange reserves were adequate to permit a liberal import policy, and rising imports have dampened or completely offset potential price increases. Wholesale and consumer prices in 1971 were both about 3.5% above 1968 levels, or average annual increases of about 1% for the 3-year period. During 1972, however, wholesale prices increased steadily to a level 15% over the previous year, while the consumer price index rose 10%, reflecting partly increases in prices of paddy and milled rice, the two items with the highest weight in the respective indexes, and partly higher import costs that resulted from currency realignments, particularly with Japan. It is expected, moreover, that larger government cash deficits will increase the pressure on prices over the next few years. Some offset to this might occur from increased imports, however.

4. Manpower (U/OU)

Thailand's labor force is projected to increase at an annual rate of about 3% at least for the next decade, thus boosting annual increments to labor, from about 500,000 in 1973 to about 800,000 by the end of the period. Economically active workers totaled 16.9 million in 1971 or about 45% of the population (Figure 12). Nearly all workers, whether urban or rural, receive meager incomes. Despite labor laws which call for a minimum wage of 16 baht per day (US$0.80), wages are determined by market force, skill, and willingness to work and to change occupation. Unemployment is purely frictional or seasonal.

The limited size of the nonagricultural sectors has resulted in a slow shift in the employment structure over the last several years. Farming still absorbs most of the new entrants into the labor force. They tend to settle on new land of increasingly poor quality, a pattern which will probably continue until the supply of cultivable land is exhausted. Between 1969 and

FIGURE 12. Labor force by economic sector (U/OU)
(Thousands)

Sector	1960		1971	
	Number of laborers	Percentage of total	Number of laborers	Percentage of total
Agriculture	10,443	*82.9*	13,076	*77.4*
Mining and quarrying	20	*0.2*	51	*0.3*
Manufacturing	462	*3.7*	715	*4.2*
Construction	71	*0.6*	150	*0.9*
Electricity, gas, water and sanitary service	15	*0.1*	42	*0.2*
Commerce	760	*6.0*	1,278	*7.6*
Transport, storage, communication	168	*1.3*	317	*1.9*
Services	655	*5.2*	1,273	*7.5*
Total	12,594	*100.0*	16,902	*100.0*

1971, the segment of the labor force engaged in agriculture declined only 5.5%, while labor absorption in the manufacturing, commerce and service sectors increased by only 9.5%, 1.6% and 2.3%, respectively.

Labor unions are banned. Thailand's first comprehensive labor law authorizing labor unions was enacted in 1957 but was abrogated the following year after the coup staged by Marshall Sarit. The country's progress in the last 15 years has been to retrace its steps to the 1957 law. In 1965, legislation established procedures for the settlement of labor disputes. These were modified by a 1972 decree which also allowed for the formation of so-called "workers associations." Technically these associations are granted the right to organize, to engage in collective bargaining, and to strike. In fact, however, they are governed by a host of restrictions intended to insure that they remain weak and ineffective. In addition, the associations are expressly forbidden to contribute to political funds or become involved in politics.

Labor strikes under the former military government were infrequent, totaling only 85 from 1970 through 1972. In 1973, however, labor unrest increased, accelerating rapidly after the changes in government in October. From January through September, there were 136 strikes and by the end of the year the figure was over 300. Nearly all strikes have been illegal. Current laws governing labor dispute provide for a tortuous and time consuming legal process before a strike is permitted. Most disputes have involved noncompliance of employers with minimum requirements of the Labor Law and civil service legislation. In the private sector, labor disputes have affected the textile, garment, and steel industries; taxis' service, hotels, and a commercial bank. The rash of strikes has also spread to state enterprises involved in rail, port, telephone, and garbage collection services as well as tobacco production.

D. International economic relations (U/OU)

1. Foreign trade

Foreign trade accounted for 35% of Thai GDP in 1972; exports accounted for 15% and imports accounted for 20%. Between 40% and 50% of government revenues are derived directly or indirectly from taxes on international trade. Perhaps even more importantly, foreign sources supply fuels, capital goods, and intermediate goods, without which domestic industry and commerce could not have reached their present stage of development. Foreign trade moves mainly through the port of Bangkok; provincial ports such as Songkhla and Phuket account for only about 18% of exports and less than 2% of imports.

Exports fluctuate markedly from year to year, depending on weather conditions and changes in world market prices, but the long-term trend has been toward a slowdown in growth (Figure 13). The average annual rate of growth in exports declined from 10% in the 1950's to 7% in the 1960's. Export performance was particularly poor in the latter part of the last decade, showing an average rate of growth of about 1% annually from 1967 to 1970. Although unexpectedly large increases in exports were registered in 1971 and 1972—17% and 31%, respectively—the slowing trend is expected to resume. The sharp gains in the last 2 years were attributable to abrupt shifts from

FIGURE 13. Foreign trade and gold and foreign exchange reserves (U/OU)
(Millions of U.S. dollars)

YEAR	EXPORTS	IMPORTS	GOLD AND FOREIGN EXCHANGE RESERVE
1962	458	553	495
1963	465	615	541
1964	593	685	610
1965	622	742	705
1966	668	890	864
1967	681	1,067	916
1968	658	1,159	938
1969	708	1,206	894
1970	710	1,208	767
1971	831	1,288	706
1972	1,088	1,482	967

surpluses to shortages on world markets for sugar, kenaf, and rice, which together accounted for about two-thirds of the increase in export earnings in 1971 and 1972.

The country is still dependent on a narrow range of products for the bulk of its export earnings (Figure 14). Poor performance over the past several years reflects for the most part a poor growth record for traditional exports such as rice and rubber and, in recent years, tin, whose combined share of total export value has declined but still amounted to 36.9% in 1971.

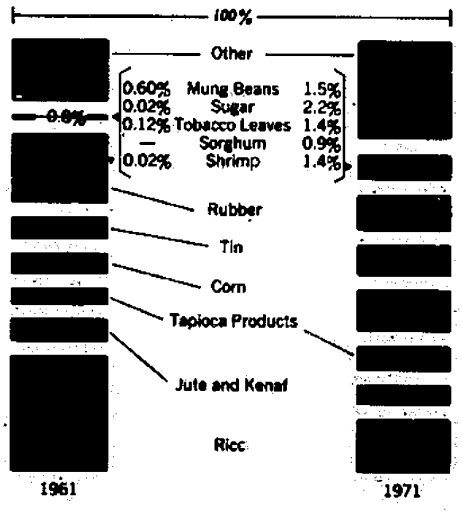

FIGURE 14. Composition of merchandise exports (U/OU)

Thailand has had some success, however, in diversifying its exports. New exports such as corn, kenaf, and tapioca showed remarkable growth from 1958 to 1966, providing an important stimulus to the economy in those years. In more recent years fluorite, tungsten, tobacco, cement, and shrimp have become important foreign exchange earners. Additional commodities such as cotton fabrics, processed fish, wood products, tropical fruits, although still relatively unimportant among exports, show considerable promise.

Thailand is heavily dependent on imports for capital goods needed to maintain and develop the economy, for industrial raw materials and fuel, and for a large portion of its manufactured consumer goods. Over the last decade the value of imports increased at an average annual rate of 10.3%. Changes in the composition of imports over this period reflect a rapid rise in capital goods imports during 1962-69, after which investment became sluggish (Figure 15). The

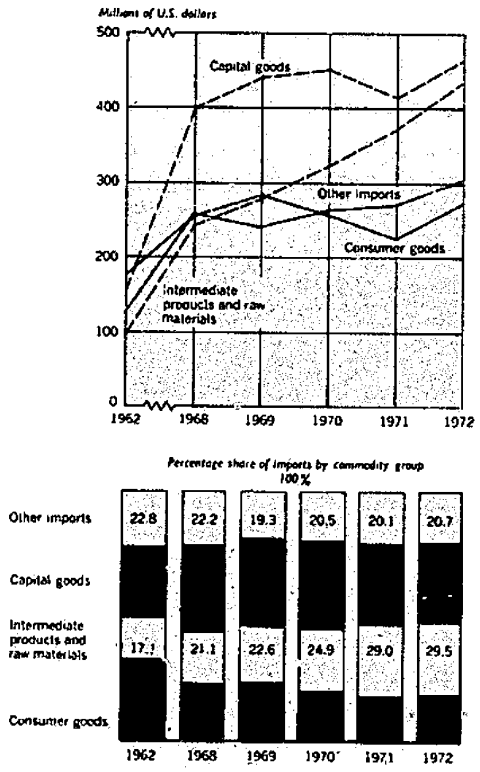

FIGURE 15. Imports by commodity group and percentage share of imports by commodity group (U/OU)

share of capital goods in total imports, for example, rose from 28.2% in 1962 to 35.3% in 1969, then dropped to 31.4% in 1972. The trend toward import substitution in consumer goods industries continued throughout the decade. Imports of consumer goods declined as a percentage of total imports, while imports of materials for consumer goods production increased from 11.4% of total imports in 1962 to 19.2% in 1972.

Imports of consumer goods were largely nondurable goods, mostly food (especially dairy products) and clothing. Durable goods imports consisted principally of household goods, electric appliances, and motorcycles. Intermediate products and raw materials imports were primarily base metals, chemicals, textile fibers, unmanufactured tobacco, and paper and paperboard. Capital goods imports were largely machinery for industrial use, electrical machinery, metal manufactures, fertilizers and pesticides, scientific and optical instruments, glass, and other mineral manufactures. The remaining imports are mostly crude oil and lubricants, vehicles, chassis, and bodies.

2. Direction of trade

Japan is by far Thailand's most important trading partner, supplying 37.7% of Thai imports (mainly vehicles, light manufactures, and textiles) and buying 24.7% of Thai exports (principally corn, rubber, rice, and kenaf) in 1971 (Figure 16). Other Asian countries, especially Singapore, Hong Kong, and Malaysia, are also major buyers of Thai foodstuffs, but they play a far less significant role as suppliers to the Thai market. The United States ranked second as a trading partner in 1971, furnishing 14.2% of Thai imports (mainly machinery, light manufactures, cotton, and tobacco), and taking 13.1% of Thai exports (principally tin, rubber, and tapioca). West Germany also plays a significant role in Thailand's trade, supplying 7.7% of Thailand's imports and purchasing 3.7% of its exports in 1971. The United Kingdom, Australia, and Saudi Arabia are important suppliers, together accounting for 15.6% of Thai imports, but none are important markets for Thai exports.

Trade with Communist countries is insignificant—less than 1% of total trade—and is carried out primarily with the U.S.S.R. and Czechoslovakia. In 1971 the U.S.S.R. purchased $6 million of Thai commodities (mainly fluorite, rubber, and corn) and sold $3.7 million worth of Soviet goods to Thailand (principally tractors, bulldozers, and mining equipment). Czechoslovakia purchased only $0.2 million (mostly rubber and kenaf) but sold $3.1

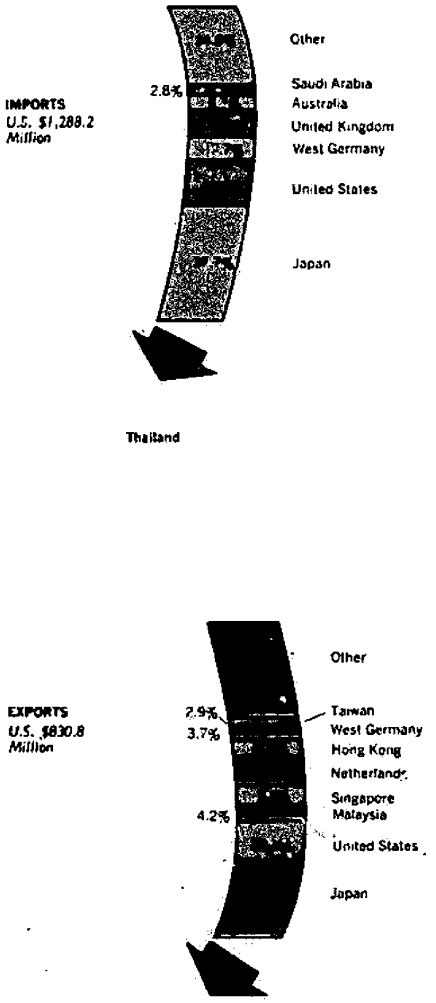

FIGURE 16. Direction of trade, 1971 (U/OU)

million of goods (shoes, machinery, and automobiles). A 1972 Thai trade mission opened the way to trade on a small scale with the People's Republic of China (PRC). Imports from the PRC had been banned in Thailand, although smuggled goods were for years displayed in Thai shops.

3. Balance of payments

In contrast to the experience of many developing countries, the rapid growth of the Thai economy during the 1960's was accompanied by a generally

healthy international payments position, although toward the end of the decade there was some deterioration (Figure 17). In 1967 and 1968, Thailand's balance on current account showed deficits, which were more than offset by capital receipts, but in 1969 capital inflows failed to offset the large negative balance on current account, and an overall deficit resulted. This downward trend continued through 1970, and in that year Thailand experienced a record deficit of $128 million. This trend was interrupted, however, in 1971 and 1972, as unusually large increases in exports again put the basic balance into surplus; the 1972 surplus was boosted by a large increase in capital inflows.

Trade developments have been the decisive influence behind the payments trend in recent years. Thailand's export base, though narrow, is still superior to that of many other less developed countries. The country also enjoys a good return from tourism because of its natural attractions. To achieve stability in the merchandise trade account, however, the export product-mix will have to be more widely diversified, preferably through greater development of manufacturing. Trade deficits rose from 1966 through 1970 as exports rose very slowly and imports continued their rapid expansion; the deficit reached a record high of $589 million in 1970, more than double the 1966 level. A greatly improved trade position in 1971-72 was brought about by unusually strong world demand for some of Thailand's principal export commodities, while imports were dampened by price increases resulting from higher tariffs and currency realignments. Trade deficits throughout the period were partly offset by net earnings from services and transfers, which, reflecting Vietnam-related spending by the U.S. military in Thailand, rose to a peak in 1968-69, and after 2 years of decline, rebounded sharply in 1972. A remarkable 70% increase in net income from tourism also contributed to the 1972 boost in earnings from services.

Current account deficits, which reached a record $250 million in 1970 before improving to $46 million in 1972, typically have been financed by large inflows of private investment capital, principally from the United States and Japan, and by loans to the central government, mainly through U.S. assistance programs, IBRD loans, and to a lesser extent, by U.N. agencies and third-country projects. Capital inflows, which mainly finance purchases of equipment, and to a lesser extent consumer durables, rose steadily from 1966 through 1969, but declined in 1970-71, reflecting the sluggishness of investment and consumption. In 1972 net capital inflows rose sharply as private investment recovered and the growth of repayment obligations on private borrowings slowed down.

FIGURE 17. Balance of payments (U/OU)
(Millions of U.S. dollars)

	1966	1967	1968	1969	1970	1971	1972
Merchandise trade:							
Exports (f.o.b.)	664	664	636	680	686	796	1,052
Imports (c.i.f.)	−873	−1,040	−1,137	−1,222	−1,270	−1,279	1,461
Nonmonetary gold	−6	−7	−11	−7	−5	−1	0
Trade balance	−215	−392	−512	−543	−589	−484	−409
Services (net)	197	284	298	303	290	260	324
Travel	13	24	18	37	44	44	75
Investment income	−1	8	13	11	18	1	−20
Government n.i.e.	162	222	245	232	214	198	241
Other services	23	30	22	23	14	17	28
Net goods and services	−18	−108	−214	−240	−299	−224	−85
Transfers (net)	46	58	74	57	49	43	39
Private	10	9	7	4	3	6	10
Official	36	50	67	53	46	37	29
Current balance	28	−50	−140	−183	−250	−181	−46
Capital	64	108	116	125	101	84	186
Direct investment	27	43	60	51	42	38	71
Other private	35	56	42	76	69	36	106
Public sector	2	9	14	−2	−10	9	9
Errors and omissions	66	5	46	14	21	67	37
SDR allocation	0	0	0	0	0	14	14
Monetary movements	−158	−63	−22	44	128	−16	−191

The large payments surpluses of the first part of the 1960's permitted a remarkable buildup of Thailand's gold and foreign exchange reserves, to a level of $938 million by the end of 1968 (net of commercial banks foreign exchange position). After declining $172 million over the next 3 years, reserves rose again in 1972 to $967 million, an amount roughly equivalent to 8 months' imports at the 1972 level.

In the coming years Thailand's basic balance is expected again to be in deficit. Payments for imports and debt service are expected to rise more rapidly than exports and service receipts because of increased investment outlays under the current 5-year plan, mounting cash deficits in the government budget, and planned reductions in U.S. military presence.

4. International organizations

Thailand has for many years been a leader in promoting regional cooperation in Southeast Asia and presently participates in such regional organizations as the Asian Development Bank and the Association of Southeast Asian Nations (ASEAN). It is also a member of several international organizations such as the International Monetary Fund (IMF), the International Finance Corporation (IFC), and other specialized agencies of the United Nations. Thailand has derived economic benefits from programs of the various organizations, both those conducted within Thailand and those of a regional nature that include Thailand in the area of impact. The Mekong Committee, established in 1957 under ECAFE (UN) auspices, is a vital institution for subregional cooperation in Southeast Asia. Composed of four riparian states—Cambodia, Laos, South Vietnam, and Thailand—the Committee has become the focal point for planning the development of water resources in the Lower Mekong Basin.

Bangkok is also an important headquarters for a number of regional organizations. In 1949, the Food and Agriculture Organization (FAO) was the first to establish its regional office for Asia and the Far East there. Since then, 11 other international organizations have also established missions in Bangkok, including the Economic Commission for Asia and the Far East (ECAFE), the Mekong Committee, the Southeast Asia Treaty Organization (SEATO), and the International Bank for Reconstruction and Development (IBRD).